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DIVINE HYGIENE

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DIVINE HYGIENE

SANITARY SCIENCE AND SANITARIANS OF THE SACRED SCRIPTURES AND MOSAIC CODE

BY

ALEXANDER RATTRAY M.D. (EDIN.)

"That Thy way may be known upon earth; Thy saving health among all nations" (Ps. lxvi. 2.)

VOL. II

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Lat 30
Heliopolis (On)
Pihahiroth
Baalzephon
Noph or Memphis
Migdol
Ataka
Wilderness of
Marah (bitter water)
Elim (Wes)
Amale
Lat 29
arr. 15 day 2nd
6 wks from Eg
Red
W Sin (food quails
Dophkah
Alus
RED SEA
Desert
Exod 19.1
Numb 10.11
Lat 28
Sketch Map
of the
Desert Wanderings
of the
Children of Israel
Year of the Human Race 2513.
" before our Lord ... 1491.
years ago 3394
Lat 27
Long 31
Long 32
Long 33
Long 34

Long. 31
Long. 32
Long. 33
Long. 34
Long. 35
Long. 36
Long. 37
Lat. 33
Lat. 32
Lat. 31
Lat. 30
Lat. 29
Lat. 28
Lat. 27
MEDITERRANEAN SEA
RED SEA
Dead Sea
R. Jordan
Bashan (Defeat of Og)
Shittim (plague for Idolatry 24000 died)
Repetition of Law by Moses
Jerico
Gilgal
Ammonites
Nebo (Moses died)
Defeat of Sihon & Amorites
Moabites
Midianites
Almon-diblathaim
Brook Arnon
Aroer
Dibongad
Arad
Arad & Canaanites defeated by Hebrews
Hormah
Hebrews defeated by Canaanites and Amorites
Amorites
R. Barnea (Spies rebellion plague)
Marah a March
Water from Rock
1st month 3 year (Numb 20 1)
Korah's conspiracy
Zered
Jeabarim
Oboth
Punon
Brook zered
Mt Hor (Aaron died)
Fiery Serpents
Ezion-geber
Ebronah
Totbathah
Horhagidgad
Bene-jaakan
Moseroth
Hashmonah
Mithcah
Tarah
Tahath
Makheloth
Haradah
Shapher
Kehelathah
Rissah
Libnah
Rimmon-parez
Rithmah
Hazeroth
K. Haltavah (Taberah)
Rephidim
Amalek battle Jehovah-nissi
water from rock Horeb
Massah (Meribah)
W. of Sinai
Exod 19 1 / Numb 10 11
arr 3 mo from Eg
till 20 day 2 mo 2 yr
Sinaitic Law given
Tabernacle
Ceremonial Law
Hygienic Code
Camps & March arr
Wilderness of Paran
Wilderness of Zin
Wilderness of Shur
Goshen
Rameses
Succoth
Etham
Bitter Lakes
Heliopolis (On)
Pihahiroth
Baalzephon
Noph or Memphis
Migdol
Ataka
Marah (bitt water)
Elim (Wes)
Amalekites
Red a
arr 15 day 2nd Mo
6 wks from Egypt
W. Sin (food quails manna)
Dophkah
Alush
Midianites
plague from surfeit of quails
fire from Lord for murmuring
Sketch Map
of the
Desert Wanderings
of the
Children of Israel
Year of the Human Race 2513.
" before our Lord ... 1491.
years ago 3394

CHAPTER XV

PUBLIC HYGIENE

"Look not every man on his own things, but on the things of others" (Phil. ii. 4; 1 Cor. xii. 25; Gal. vi. 2).

1. Secular Public Hygiene

Public hygiene is the science of making hygienic laws meant to promote the health of communities; and the art of carrying the public acts founded thereon into practical effect. It investigates the sanitary needs of nations, nay of humanity. It is necessarily, and for obvious reasons, founded or private or personal hygiene. And both in practice and theory the two branches of the science are inseparably connected. As strict personal hygiene is the surest and indeed only way to best preserve the physique and beauty, physical strength, intellectual vigour; to keep the entire body healthy, to live long, preserve a lengthy youth, ensure a vigorous manhood, and a hale and hearty old age; to enjoy the largest possible amount both of physical and mental happiness; and the best aid to give life throughout a healthy, social, moral, mental, and spiritual tone: so, too, is it with public hygiene for the community, nation, and race.

Clearly, therefore, attention to hygiene is not only the duty of everyone as individuals, but of such as form units in public bodies and states: to enable them to cope with and counteract the many unhygienic influences always around us, and often so potent that it is only by united and concerted action we can lessen or overcome them.

Human life is valuable not only from a moral and social point of view, but also from an economic, pecuniary, commercial, and national standpoint. The financial value of each able-bodied man is over £300: and of each man, woman, and adolescent over twelve, £200. Every life lost which might be saved by proper hygiene therefore represents so much money lost, not only to the individual's family but to the community and the State; and of labour which might be spent in trade, agriculture, manufactures, commerce, &c., to add to the wealth of families, communities, or the State. The financial value of soldiers, sailors, is even greater, on account of the cost of their

training, to the community; an expense in which all share. From several points of view, therefore, both lower and higher, the great hygienic problem applicable not only to the more highly civilized but also to the lower grades of humanity, is how to free the mass from diseases inherited from and through the primal pair, therefore hereditary; and to develop in the mass the physical, intellectual, moral, and spiritual qualities of the ideal, and that have already distinguished some in one or other, sometimes more, than one of these points; and to reach towards the Divine image to whose likeness all should aspire, as it was that which Man once lost. This can only be a slow process: and the first step towards it is clearly to improve the health of the living generation, using the term health in its widest sense, body and soul. Pursue this as assiduously as we cultivate the health and physique of inferior animals; and it will appear in the children, and again in their offspring. A slight gradual development for the better in each generation would in the end yield valuable results, which, if at once manifested, would seem miraculous.

Although the general well-being and health not only of individuals but of the public at large is, and will always be, mainly in their own hands; and depend chiefly on personal exertion and self-restraint; there are circumstances under which private persons cannot control the necessary hygienic agents; and also others in which they themselves will not attend to them. These are cases where persons are not their own masters, but in the service of others, whose duty it is, among other things, to superintend the hygiene of their households, workshops, factories, warehouses, &c.: and also those still larger bodies of people that congregate to form villages, towns, and cities, among whom hygienic circumstances may arise which only the public as a body can deal with. These have to transfer their power to health officers or to local and government officials whose duties are both legislative and executive, and who not only make sanitary laws but also carry them into effect. In a wide sense, however, it is the people and their physicians who are the sanitarians: and as such they clearly ought to have a fairly complete knowledge of public hygiene or at least its broad outlines. For this a vigorous and intelligent public opinion on local government should be created in many places. Since, until this is done, the action of authorities is more or less hesitating and inconvenient.

Thus, to give examples, the water supply of a town, city, or village, may be polluted or deficient. Or their provisions may be adulterated. Or the houses and streets may be indifferently drained, and the air thereby rendered deleterious. In such cases health authorities must act for the people and remedy the

evil. Or the houses of a city may be fairly ventilated, but a chemical manufactory, an abbatoir, or some other nuisance may taint and render the air dangerous. In such cases, where ignorant or stubborn persons will not remedy the evil, the local health authorities or the State ought to step in and compel them. Or, the ventilation of a coal-mine may be defective; in which case local authorities or the State should enforce an improvement. Or a community may be in danger of the introduction of an infectious disease from some distant place with which it holds intercourse: in which case local governments wisely interfere to enforce a judicious quarantine. Or the health, comfort, and efficiency of Armies and Navies may suffer from errors in dieting, clothing, air supply, and so forth: in which case governments usually superintend and make satisfactory sanitary re-arrangements. Or, short-sighted, ignorant workmen may themselves neglect sanitary rights, quietly endure wrongs, and object to have their special trade made sanitary, and indulge in the luxury of disobedience, to their own detriment; lest improved health might cause an influx of new operatives, reduced wages, difficulty in procuring work, and an interference with their more immediate comfort. Here the only remedy consists in vigorous sanitary inspection and strict health laws. In carrying these out prejudices have often to be overcome and inactivity quickened. While sound judgment has often to be exercised as to the extent to which considerations of public welfare ought to interfere with the absolute rights of private owners of property and even with the personal liberties of individuals.

At the same time it must be remembered that to maintain health, private and public hygiene must go hand in hand. Local sanitation will not prevent disease if private hygiene is neglected. So also careful and popularly followed private hygiene will not prevent disease if public sanitation is neglected. For the maintenance of general health every one of the laws of hygiene, both public and private, must be carefully and completely followed out. This branch of sanitary science, which studies the health and physical condition of the masses; as with private hygiene; is based on the belief that much of the disease which prevails among mankind is preventible. The same hygienic influences which act on the individual for good or for evil also operate on the public. So that in studying the latter the food, clothing, air, &c., which so much affect the one, have likewise to be studied. Public hygiene is as valuable and as necessary for the health of communities and nations, as private sanitation is for that of individuals. It is a matter of comfort or misery, sickness or health, life or death, to thousands, nay, millions, in every community and country. Per-

sonal hygiene involves the health, happiness, and life of the individual. Whereas public hygiene embraces, directly or indirectly, those not only of our own nation or quarter of the globe, but also of the 1,456 millions who now people the habitable globe; as well as their descendants to all generations. Private and national prosperity, so intimately connected, are, moreover, closely allied with public health. How to maintain the latter is thus, for several reasons, a problem of general as well as private importance. It is as wise of nations as of individuals to study health preservation. State legislation therein is a matter of first importance. And in nothing can the shrewdness of any government be better shewn than by judicious sanitary legislation. While experience proves that, as with individuals so with nations, those who are the most healthy, vigorous, and longest lived are those who understand and obey the laws of health, and have the most carefully regulated hygiene.

But the great value of public hygiene is best shewn indirectly by the consequences which ensue when its laws are neglected. When for any reason, ignorance, indifference, carelessness, antagonism, self-interest, malice, and so forth, either on the part of private individuals, public officials, sanitary boards, governments, or other authorities, the sanitary laws necessary for the community at large are ignored, neglected, or imperfectly carried out; dire results are apt to ensue in the shape of a lowered standard of health, an increased predisposition to disease, and a high sick and death-rate. Thousands, nay millions, are daily losing strength, health, and even life from this cause; especially in semi-civilized and barbarous countries. This makes it a matter of universal interest and concern. And, therefore, all should unite to make and enforce thorough and prompt sanitary legislation, and prevent public uncleanness, dirty streets, houses, people, clothing, overcrowding of the poor and the working classes, a deficient water supply for baths, and other potent antagonists of health. Unquestionably, even at the present day, we often pay the penalty in the loss of much health and life, because we fail in our public hygienic duty. And the non-avoidance of preventible disease among all, but especially the poor and the working classes that suffer most and have least power to succour themselves, involves in most countries a tale of culpable neglect, nay, crime, towards the thousands of their fellow creatures who annually suffer and perish from this cause: and of sin towards the Great Sanitarian, who says "thou shalt not kill," but "love thy neighbour as thy self," on the part of employers, public officials, governments, and even parents. Nor, unfortunately, does the evil stop here: for disease and physical degradation go hand in hand. So that,

while the race thus becomes decimated and degenerated, morals and civilization also deteriorate in a similar ratio.

The effects of a defective public hygiene, even in one particular, are varied. For instance, the health and strength of a whole community, army, navy, or even an entire nation, has declined by defective and improper food, or lax morality. The inhabitants of an entire village, town, or city may be slowly but surely poisoned, and become sallow, emaciated, weak, and on the borderland of disease, by defective drainage, badly ventilated dwellings, and so forth. And some of the most frequent widespread, great visitations and deadly diseases of the infectious and contagious kind, that have even decimated nations, have been propagated, if not originated by these, especially by impure air, water, faulty drainage, and a defective quarantine. To those and such like causes we may mainly ascribe the terrible epidemic, plagues, and pestilences of the 1st Century, B.C.; the 2nd and 3rd Century, A.D.; which disappeared with the latter century; the Bubonic or Inguinal Plague, which began in the 6th Century A.D., and continued with numerous outbursts of varying intensity till 1844, when it apparently became extinct, only to re-appear in china and India within the past few years: the active recrudesence of epidemic small-pox, measles, and scarlatina, that have not yet departed: the Gangrenous Pestilence or Pellagra of the 10th, 11th, and 12th Centuries (Middle Ages), fortunately long extinct: the Black Death of the 14th Century, which re-appeared as an epidemic five times in 72 years, in one year (1665) carrying off nearly 70,000 persons, and in five years 160,000 people; no order, age, or sex being spared in London; the sweating sickness of the 15th and 16th Centuries, which disappeared, after five visitations, about 1551: epidemic syphilis of the 15th Century: during the 18th Century Asiatic cholera, cholera infantum, yellow fever, diphtheria, and cerebro-spinal fever. Instances might be multiplied were it necessary.

The indirect effect of lax private hygiene on public health will also be apparent. Thus, by persistent want of cleanliness of the person, clothing, household, &c., the seeds of some of the loathsome infectious diseases, for example, small-pox, scarlet fever, typhus, &c., which are always floating about invisibly, may find a suitable soil in which to be developed. And, once begun, they may spread indefinitely till the entire neighbourhood, and even the nation, may suffer. Hygiene interpenetrates every phase of social life; does this at all times; and under certain conditions unusual hygienic care is necessary, both personal and public. Otherwise we are likely to have an increased amount of sickness and an increased death-rate. These circumstances are, whenever there is greater crowding of

individuals, a condition which lessens the facility for proper attention to hygiene, especially as regards cleanliness, ventilation, water supply, drainage, and light. This happens in tenement houses, alms-houses, hospitals, charitable homes and schools, prisons, ships, villages, towns and cities, more than in rural districts.

Of all the trades and professions clergymen, barristers, farmers, agricultural labourers, game-keepers, stand best in healthiness. On the other hand, the highest mortality is found among printers, bookbinders, clerks, commercial travellers, glass manufacturers, dock labourers, fishmongers, coachmen, draymen, grooms, dealers in alcohol. This forms the basis of a special department of study, namely, the hygiene of *trades* and *professions*: also of naval and military hygiene. There is also in addition to this a hygiene of the sexes, male and female; also of the ages, the infant, adolescent, adult, and aged. Also of the temperaments, the sanguineous, nervous, phlegmatic, bilious. Also of races, the white, black, and yellow.

As with individuals, so with public bodies and communities. Statistics shew that where disease and death are most prevalent, it is not among the well-fed, cleanly, and temperate; or among such as live, work, and sleep in well ventilated rooms: but rather in crowded, badly aired schools, dirty tenement houses, overcrowded and insanitary barracks, workshops, prisons, workhouses, and so forth. So also facts and figures may easily be cited to shew that it is the villages, towns, and cities which have narrow, dirty, badly-drained streets, or a deficient water supply, small, ill-ventilated houses, and a generally inferior hygiene, which are most sickly and most readily decimated by epidemics. It is the seaports where the quarantine is most defective, that the nation has most to fear regarding the admission of some deadly foreign disease. And it is the soldiers of armies and the sailors of navies which are underfed or imperfectly dieted, clothed, housed, tented, water-supplied, and camped, which are most sickly, least active, useful, and martial, and most easily beaten.

The village, town, city, state, nation, country, or continent, in which sanitary measures, both personal and public, are most attended to, are invariably those which shew the least amount of sickness and the smallest mortality. And the reverse is equally true. Those which shew the highest death-rate and morbidity are those in which sanitary matters are neglected. The following table, which shews the death-rate per 1,000 in most of the chief States of Europe will prove this:—

TABLE XIV

Death-rates per 1,000 in different European Countries.

Country.	Years.	Deaths per 1,000 living.
Norway	1846-55	17·9
Sweden	1869-78	18·9
Denmark	,,	19·2
England and Wales	,,	21·8
Scotland	,,	22·1
Belgium	,,	22·6
Switzerland	1870-8	23·5
France	1869-78	24·3
Netherlands	1869-78	24·4
German Empire	1872-78	27·2
Italy	1869-78	29·5
Spain	1861-70	29·7
Austria	1869-78	31·1
Russia	1842	35·9
Hungary	1868-77	39·6

Norway is thus the healthiest European country and more than twice as free from disease as the most unhealthy, Hungary. The British Isles record is also low. But in all topography and climate has also much to do with the result, as unhygienic or hygienic factors which aided these now alluded to. In many of the British Colonies it is lower than any of these: shewing the effect of scattering of the population and a more open air life. Thus, during 10 years (1866-75) the deaths per 1,000 living were in:—

Victoria - -	15·8	S. Australia -	15·3
N. S. Wales -	15·3	Tasmania - -	14·8
Queensland -	17·7	New Zealand -	12·4

In all of these the percentage of deaths was smaller than in the European Countries, even Norway; New Zealand being less than one-third of the amount in Hungary. No doubt in all of these the mortality is largely influenced by inherent hereditary strength of the several peoples; the nature of the climate, and abundance of its food supply. That the same fact holds good regarding cities is shewn by the following table of death-rates in 1878, in well-known foreign and colonial communities:

TABLE XV

Death-rate per 1,000 in Cities.

City.	Deaths per 1,000	City.	Deaths per 1,000	City.	Deaths per 1,000
Calcutta	37·7	Turin	31·1	Christiana	18·5
Madras	48·8	Venice	28·7	St. Petersburg	47·1
Bombay	41·8	Trieste	36 2	Berlin	29·9
New York	24·8	Geneva	23·6	Hamburg	26·9
Brooklyn	20·1	Paris	24·6	Dresden	24·7
Philadelphia	18·0	Brussels	22·0	Munich	34·6
Montreal	30·4	Amsterdam	24·4	Breslau	29·9
Alexandria	45·4	Rotterdam	27·3	Vienna	29·6
Melbourne	22·8	Hague	26·4	Budapesth	40·3
Rome	29·8	Copenhagen	22·0		
Naples	33 1	Stockholm	22·4		

Here Copenhagen shews the lowest and St. Petersburg and Madras the highest. Hygiene has mainly to do with this result. Cities, European and otherwise, suffer to a large extent in the ratio of their ignorance and neglect of sanitary laws; and of the poverty, squalor, barbarism, and ignorance of their population, who have to carry the little they do know into effect. Statistics of barbarous and semi-barbarous cities would be still more startling because of their utter indifference and ignorance of sanitation.

Many cogent reasons may thus be given for increased attention to the theoretical and especially to the practical study of public hygiene; and for trying to instruct the public, especially the poor and ignorant, therein. Thus:—

1st. Because, on our neighbours' ignorance of hygiene, or on their foolish, culpable, careless, or indifferent disregard of its teachings, may depend the healthiness and freedom from disease of ourselves, families, homes, friends, locality, and even the entire community in which we dwell. By their inattention to accumulated filth, which causes tainted air: or the same thing arising from leaky drainage, from faulty plumbing: and so on; foes far more insidious and terrible than any burglar may be introduced unawares, and at serious cost of health, and even life; from which there are many victims every year. Our very safety therefore depends:—

a On the destruction of hygienic ignorance, by

spreading proper sanitary information, simple and easily understood.

b On the dissipation of personal indifference on the subject.

c On the removal of carelessness; and kindling an interest on the subject. It is worth our while to teach the simple essentials of health and comfort: such matters, for example, as the elements of practical ventilation, cleanliness, and so forth.

2nd. Epidemics of deadly contagious diseases spread usually from low dwelling-houses, streets, and localities; crowded tenement houses and cellars. If we neglect the poor who live there we have to quell not only these dangerous diseases but also the crime, immorality, and even riots; matters which have a close connection with insanitary surroundings; and that flow directly and indirectly from these causes. Without this, all local government aid is unavailing. There is no better beginning towards the suppression of crime than to give the poor larger, cleaner dwellings and abundant food. Cleanliness is not only next to Godliness, but often the first step towards it. Improve the air in the dwellings of the poor, in their workshops, factories, &c., and we remove the craving for stimulants created by impure air; and thereby lessen the demoralization which gradually leads to drinking; and that again to poverty and crime of all kinds.

3rd. All men should have, on moral and social grounds, an interest in the physical welfare of their fellow creatures. There is a close connection between insanitary surroundings, disease, and mortality, short lives, feeble bodies, and weak intellects.

If we make the bodies of our fellow creatures healthier and longer lived by improved sanitation; their minds and souls will be correspondingly benefited and improved. Sanitary science thus becomes the handmaid not only of body-health but also of mental culture, spiritual health, morality, and religion. The medical is the most omnivorous of all the sciences. It searches everywhere; and gladly and greedily absorbs and utilizes all it finds worthy and capable of absorption and incorporation. And so in turn it seeks and searches the Holy Scriptures to ascertain if it can glean anything new and valuable there, especially in its hygiene, to promote its broad, far-reaching, and beneficent ends; and to this we now appeal.

2. Biblical Public Hygiene

The Holy Scriptures throughout is full of matters deeply relating to public hygiene in its fullest and widest applications. That of the Mosaic period and those hints and laws given to the Hebrews, as detailed in the Pentateuch, are especially numerous and valuable. Jehovah's pioneer sanitary methods and laws have, moreover, been handed down to us by His own command with great and intentional minuteness for the general instruction of the world. He who created sanitary forces also formulated the laws by which these forces are to be governed; and revealed them to us through the Hebrew Law-giver. The Hebrew Pentateuch is a store-house of facts regarding public sanitation, of which, as its own initiation, any nation might be proud. Because not only is it Divine, and therefore like all else that Jehovah does *perfect*; but includes laws and ordinances regarding the chief sanitary and insanitary agencies which more or less affect human beings, as they were in camps, cities, villages, &c.; and therefore applicable to all others similarly circumstanced. When Jehovah emancipated the Hebrews from Pharoah's yoke and led them out of Egypt, He began, superintended, and successfully accomplished a most difficult problem in public sanitation. The public sanitary factors He employed legislated for and divulged as part of the Sinaitic or Mosaic Code, include food, water, and air supply, cleanliness, exercise, rest, &c., &c. While special rules are given for the regulation of the camp and the Tabernacle; by which the church, tents, baggage, &c., &c., of the tribes were kept clean and healthy. The data regarding these are often given in a direct form, but sometimes in an indirect and scattered shape. Excessive cleanliness in all things was its ruling idea. By which the non-deposit of noxious, unhygienic matter, solid, fluid, semi-fluid, or gaseous, was prevented, lessened, or speedily removed, ere it could act detrimentally and morbifically. Thus were the Hebrew welfare, vigour, health lives and happiness of the masses, both individually and collectively attended to, both when camped and on the march. Thus were the tribes kept in the greatest possible safety from maiming and disablement by overwork or excessive fatigue, as will be seen by a study of the following chapters. Under Jehovah's care and superintendence the tribes were severally and collectively well fed and clothed; but were also kept in comfort, security, happiness, peace, and freedom from the worry of proximity to hostile tribes. Hope, moreover, added its aid to ease of mind, in the anticipated possession of the fair, fertile, and not far distant promised land towards which they were bound. The Hebrews could have had no wiser, more omni-

potent, competent, or beneficent hygienic guide and aid than Jehovah, the creator of their frames and of the sanitary forces and laws that were to act on these for good or for evil. And the result would have been ideal and monumental had the Hebrews been as obedient and apt pupils, as their Teacher was able and willing. For no modern city, sanitarily arranged and governed by humanity, even the most enlightened, could have had better or more perfect hygienic arrangements than had the Hebrew people, tabernacle and camp. The sanitary laws of the Hebrews of the Wanderings were perfect: and no evasion of them was allowed. Moreover, to aid these laws appertaining to the hygiene of health, Jehovah superadded others of equal import to aid in counteracting disease; especially for their chief ailments; and not only for the most frequent, loathsome, and virulent of them all, leprosy, and other infectious and contagious diseases then prevalent, but also for the most frequent and special physiological conditions of ordinary male and female life. The rules involved a most important and newly introduced sanitary factor, namely isolation or removal of the ailing from the sound: a proceeding which left the congregation at large, as well as the camp, "clean"; that is, not only typically but also medically pure. The entire subject of the Mosaic hygiene is interesting as forming an important chapter in the advent and early history of medicine, especially of its chief branch, sanitation; and permitting comparison of this Divine and perfect, but, humanly speaking, ancient system with that which is modern, mutable, and often erroneous.

One of the most accredited axioms of modern medicine is, that a well-devised and strictly-enforced system of public hygiene is of priceless value to the multitude; and is especially necessary not only to preserve the national health, but also to prevent disease among the masses. That it was so regarded by the Supreme Devisor and Dictator of the Sinaitic hygiene over 3,000 years ago is evident from the completeness and efficacy of the code bequeathed by Him; a revelation of His hidden hygienic forces and laws to His "chosen people" whom He had selected, developed, and intended to make the world's model nation of the future; its instructor in hygiene as in much else of the deepest import and necessity for living both wisely and well. But there were special reasons why this sanitary code of the Hebrews should be not only carefully codified, but also strictly and justly administered and enforced; which it is well to study, that we may readily realize how intricate was the problem Jehovah had to solve, and the difficulties He had to contend against in effecting this.

1st. The Hebrews of the Exodus and the Wanderings were not a small but a large and peculiar community.

The 70 souls had increased marvellously under Divine care, and now, roughly speaking, numbered—

Males over 20 - - -	603,550
Women - - - -	604,000
Levites, males over 1 month -	22,273
Do. females - -	22,500
Children and mixed multitude	747,677
	2,000,000

This, following the Biblical commentators, is probably an under estimate, especially as regards the children. But, as it is, the number is not far short of half the population of London. These were not widely scattered as in Goshen, but closely massed. And they lived not in huts or houses, but in tents, somewhat like an army of soldiers; only they were not all fighting men, but peace loving; and consisted largely of women and children. These were arranged according to tribes; and no doubt also according to families, so as to prevent jealousies and contention. As now well known in sanitation, the aggregation of individuals materially increases the sanitary danger. Jehovah, in massing the Hebrews into a huge camp did not place them and it into the dangerous sanitary condition of other and far older communities of that day, such as Memphis, Thebes, On, Pithom, Ramses, or those of Judea, Babylonia, Assyria, and Syria; cities and nations among whom the theory and practice, art and science of sanitation and health preservation were unknown; and magnificence was alone sought after. In addition to selecting suitable sites for the successive camps, Jehovah had to legislate and formulate rules for camp life; and so gave us such as well befit even modern communities, soldiers, camps, and ships of war. He had to legislate to inculcate and enforce cleanliness, street wideness, and ventilation for the tribes; to arrange regarding popular conveniences, disposal of the dead, and the ailing, to select a site for their church, centrally situated, where the congregation could worship and sacrifice, thereby incurring a double danger from uncleanness, which He had also to meet, by making and formulating appropriate laws, as we now do for our churches, halls, factories, theatres, &c., where mankind congregate. And He gave such laws as are largely applicable, even now, and unsurpassed by any we can make.

The chief sanitary mistakes of other nations and communities of that day were very much as they are now, only accentuated, namely, overcrowding in narrow streets and small rooms, general inattention or even total neglect of cleanliness of the highways, their persons, houses, clothing, air, and often of the water and the food. Jehovah meant to change all this and initiate sanitation, as it ought at all times and in all circumstances to be. The Hebrews were to have an ideal camp and tabernacle as well as ideal laws to enable them to live an ideal life. They were intended to be models in all sanitary matters as well as in social, moral, and spiritual subjects. The Hebrew camp and the Hebrew life and their many converging factors were therefore planned on sanitary lines; such as would give the most perfect sanitary conditions, especially wide, open streets, favourable alike to ventilation and cleanliness, the two chief factors in camp and city hygienics; for their laws for camp life were also meant for their subsequent residence in the cities of Judea (Deut. xxviii. 3-16); and are thus to a large extent suitable for our modern communities. Hence why every item is so minutely chronicled.

2nd. The Hebrews of that era were difficult to deal with and to manipulate, even by the Deity, who has the powers of evil to work against Him, which the Hebrews, alas, too often joined. Long and hard slavery had made them mostly so debased and ignorant; that Moses no doubt appeared a marvel of learning. The Priests and Levites had not been selected and taught; nor had the Princes and the Elders been chosen. Ignorance on the part of the public is a great opponent both to satisfactory sanitary teaching and practice. It is so now and it was so then. The ignorant are the slowest to learn and the hardest to teach obedience. Hence, until Jehovah revealed His hygienic laws to Moses at Sinai there was much popular ignorance, not only of hygienics, but of all else; not only on the part of the people, but even on that of the better class and the leaders. Even the medically educated and old military general, Moses, failed to manipulate, mass, lead, and guide the Hebrew host during the first year of its emancipation, exactly as Jehovah desired. His methods were short-sighted and human, therefore faulty. And no doubt he failed in hygienics as well as in other camp arrangements. Had it been otherwise Jehovah would not have interfered and stepped in to give a new and perfect camp outline on an eminently sanitary basis. With the common people of that day the necessity for hygiene

was not in all their thoughts. As is frequently the case now, they considered the human body was so constructed as to be able to take care of itself, of its own health and hygiene, and was self-regulating as well as self-developing. So far had the Hebrew degradation gone that not a few had lapsed into Egyptian idolatry. And this science with which Jehovah had now enlightened them and the world was new; even to their professionally-educated law-giver. No doubt it would often puzzle the Hebrew laity sorely and sometimes try their very limited human patience to be required to learn so many new laws and codes on so many different subjects. They had new spiritual, moral, social, and many other new laws to absorb; and here was another hygiene, of even less apparent necessity and importance. All this would add to the Levitical difficulty, and Jehovah's, both in teaching and carrying these laws of public hygiene into effect.

3rd. That it is necessary to care not only for our own health, but also for that of others, not only for their interests but for our own, was one of the first and greatest lessons which the Hebrews had to be taught, in common with all other nations and peoples. One interest, that of the public, leans on and leads to that of the other, the individual; and vice versa. In a community or camp the public health is common property; and must be aided by combined individual efforts; in which all alike have their obligations. To effect this, and thus promote public sanitation, they should therefore both know and appreciate the laws of private hygiene. And the Hebrews, in thus learning their Heaven-bequeathed hygienic code, and obeying their Maker's laws, were thus early and practically taught not only Jehovah's first and greatest law, that of supreme love to the Divine Law-giver, but also the second, to love their neighbour as themselves; and thus the entire subsequent double moral law of Christ.

4th. Jehovah had another hygienic difficulty to encounter in having to feed and clothe such a vast multitude; to keep them employed to prevent mutiny and discontent; and giving them just enough work and amusement as to keep them healthy and happy; giving them suitable rest, ease of mind; teaching obedience and trust; and educating them in the higher hygiene. They had food in abundance and variety in fertile Goshen. The Arabian deserts could provide little

after their first few days' stock was exhausted. They had no base of supply to fall back on while day by day travelling further from Goshen, and none could be had from surrounding tribes, all unfriendly. It would take at least two years for the camp to reach and stay at Horeb to receive the law and then march on via Kadesh to Judea. Their rebellion at Kadesh prolonged this for 37 or 38 years more; and thus, from a human point of view, added materially to Jehovah's care. For forty years He had to provision this multitude of oft discontented Israelites under the most adverse circumstances: not in the fertile and prolific plains of Goshen, nor in the land of Judea, with its milk and honey, corn and wine, in abundance, but in the intermediate, comparatively parched, desert peninsula of Arabia; and not as a settled, but as a nomadic people. This Jehovah undertook and overcame as no human being could, by miracle; purposely thus to endeavour to develop their love, faith, and fealty. Manna and quails were their staple support, to which they would add fish from the Red Sea, animal food from their flocks and herds, vegetables and corn grown at their chief stations, Kadesh and Mount Seir: perchance food captured from conquered foes, especially the Amalekites (Ex. xvii. 8); Canaanites (Numb. xxi. 1-4); and Midianites (Numb. xxxi. 9). Similarly Jehovah had to supply them with water, no easy task for over two millions of people. Wells gave them a temporary supply (Ex. xv. 27). The wady streams did the same in winter. But another miracle was necessary when they could have neither of these, and then they had the best of all from the rock (Exod. xvii. 6; Numb. xx. 11). The two millions had to be clothed. For this their flocks and herds supplied skins and wool. Insufficient or bad water, food, air, and clothing would have been potent insanitary factors, that would have engendered disease and brought discredit on the Hebrews and their Divine Sanitarian and Caterer. So also their rest, exercise, recreation, &c., were all considerately provided for by Jehovah, as will be seen by reference to special chapters.

5th. Another sanitary factor was their frequent change of camp, especially during the first two years of the Wanderings. During the 40 years they re-camped many times (Map). Their longest stay was at Kadesh (Deut. i. 46) and Mount Seir (Deut. ii. 1). These frequent changes had their sanitary advantages and

disadvantages. It kept the turbulent and restless Hebrews doing something. They moved cheerfully as they neared Canaan. And each time they left a soiled for a clean site. But it was apt to interfere with their personal hygiene. The retrograde journey made them discontented and discouraged (Numb. xxi. 4), and was thus, so far, unhygienic.

6th. Their advance towards Judea, their name, prowess, success and comfort; and the knowledge that Jehovah was leading them, combined to make them both hated and feared by surrounding tribes. This and the feeling of safety under Divine leadership generally instilled confidence and hope in the Hebrew bosom, although not always (Numb. xiii.). Sometimes it begat conceit and independence and led to disaster (Numb. xiv. 42). So the moral hygienic factors and the unhygienic continued to fluctuate, rise and fall as they progressed.

7th. Jehovah found it especially hard to inculcate control of the passions, unruly then as they oft are now, and from which they frequently transgressed, as from gluttony (Numb. xi. 34); lust (Numb. xxv. 1); and so on; and not individually, but as a community. But doubtless the worst lesson of all was to teach them cleanliness in public as well as in personal matters; in physical as well as in social, moral, and spiritual things. It would be especially difficult to instil the higher purity and eradicate Egyptian tendencies. Unclean habits are frequent associates of poverty; and it would take time and patience to educate these old slaves from those unhygienic habits, both of the physical and the higher life. That it was so in physical matters is shewn by the many laws ordained to teach them what may to some seem hyper-cleanliness, not in one but in all matters; not for the body only but for the morals and the soul; not for the home alone, but also for the tabernacle and the camp; not for their private life only but for their public life and national existence.

8th. In all and throughout Jehovah was the sole sanitarian. The people could give no help. They were often slow to learn; frequently disobedient. Nor could the better class assist much in sanitary matters. Even Moses was himself a pupil; so were the Priests and Levites; chiefly useful in seeing the laws of God obeyed. So that both the private and public hygiene, even that very important sanitary item, the selection of a camp site, was all left to Jehovah to elaborate. So

also was the raising, marching, and re-camping, the arranging, distribution of labour, and order of the journey were all Jehovistic, and therefore perfect. But the total and final result was that, not in one but in all of its sanitary arrangements, the public hygiene of the Hebrews far surpassed that of any other people of that or former days; and is a lesson to us even now. All their arrangements were exceedingly simple, a rule which holds good as much in sanitary as in other matters.

The health code of the Hebrews, given them from Sinai, was no doubt intended *per se*, as didactic teaching, as was also its practical outcome, if this had been more satisfactory than it turned out, a lesson for other nations; as well as a legacy for other and future peoples, including those of modern times, to help our hygienic efforts when we fail, or endorse the successful ones that we devise; and also to develop and initiate new apposite hygienic ideas. Had the Hebrews obeyed God, walked as He wished, and helped Him to educate and develop themselves, they would, and probably soon, have become and remained the leading nation of the world in all matters, sanitary subjects included: the beacon light of the world in mundane matters, spiritual, moral, mental, and hygienic; political and social. Other nations, both of that and of future days, would have had the benefit of the Hebrew health and other law codes; and the practical example of their efficacy to invite their adoption. As it is they had these only to a limited extent. But it is noteworthy that we do not hear of the crowded Hebrew camp being decimated by camp fever, diarrhœa, dysentery, or any of the more prevalent diseases of communities and armies, such as arise from faulty feeding, a defective water or air supply, uncleanness, &c. Moreover, though the Hebrew health code has been received by other nations, like the other departmental codes of the Sinaitic law, this hygienic code has been almost neglected, nay, often altogether ignored and slighted, as it was and still is to some extent by the Hebrews themselves.

To Jehovah it was as easy a matter to make, formulate and divulge hygienic laws as it was to originate and perfect hygienic forces. The difficulty was with His ignorant, indifferent and wilful pupils. With these unpromising acolytes supremely ignorant of hygiene, its motives, methods, and results, Jehovah had to take especial trouble. Because the Hebrews were selected and trained with a view to their fulfilling an exalted rôle among fallen men, becoming an exemplary people and missionary nation for all others with whom they were to come in contact, or to whom their name and fame had spread. Jehovah, by shewing the Jews His love, power, and

beneficence to mankind, especially to them; desired to win their affection and fealty, by educating and inculcating that by obedience to His spiritual, moral, and social laws they would attain the highest happiness and prosperity this world affords; while by attention to His laws of body-health or hygiene they would have the highest permitted vigour, health, and longevity, in Man's fallen estate; and thereby in both ways aid them in some measure to counteract the results of Adam's fatal transgression, on their soul, body, world lives and future. All these results and teaching were not to be confined to the Jews, but were to be conveyed by them and participated in by contemporary and future nations. The legacy was to be world-wide. All, therefore, that Jehovah said or did conspired to promote those earth encircling ends. This included the Hebrew hygiene in its widest sense: and this again comprised that most important section of this, namely, the public sanitation of which we are now speaking. The Hebrews were intended to become a pattern people and ideal nation as regards health, strength, vitality, freedom from disease, and longevity. To ensure this they were given a Heaven-devised health-code, which was to be firmly enforced to effect the desired object. Its many laws, combined with the multiplicity of the commands appertaining to several other codes of the multiple Mosaic law, often of greater apparent value, could not be soon learnt, even if the entire congregation had individually possessed medically educated minds; far less by degraded and illiterate souls like the mass of Hebrews of that day, added to the strangeness of the subject. From these causes the lesson was not soon learnt; and not till after many punitive episodes for infringements; all of which proved that Jehovah regarded these murmurings, rebellions, contentions, and disobedience of sanitary laws, like infringement of other laws, as sins to be punished, but in this case mainly by specially sent diseases. It was Jehovah's object to make the Hebrews, if not perfect and sinless, at least a humanly-speaking, virtuous, God-obeying, holy nation; and as part of this aim to shew a health and life record far above that of any other existing or future nation, far or near. This, to a great extent, they no doubt had in the Wilderness; but, undoubtedly, it would have been more pronounced but for the disease and death punishments meted out to them so often and swiftly for gross special sanitary neglect and sins.

This was the first recorded attempt to put the sanitation of camps and communities on a satisfactory methodical and philosophical footing. There had been armies and camps and communities before. The human leader of the present host had generalled a victorious Egyptian army in his earlier life: but yet could not arrange for the Hebrews to Jehovah's satis-

faction; who therefore had to remodel it after His own Divine and therefore "perfect" methods. Moreover, the Hebrews had to be doubly instructed; in personal or private and in public sanitation. Every item of public instruction was, moreover, one of private application; and so in turn individuals were commanded to perform sanitary duties which aimed secondarily at promoting public welfare.

From the inception of the Hebrew nation in Abraham down to the Exodus, their health and physiological welfare had been specially cared for; as shewn by their marvellous increase under the most adverse conditions (Exod. i.). At the Exodus there was not one feeble person among the tribes (Ps. cv. 36). So were they equally healthy in the Wilderness (Deut. vi. 24). Jehovah took special care of everything which concerned them. This largely included their public and private hygiene. No nation had previously or has since had sanitation, not in embryo but fully fledged, bequeathed and inculcated and illustrated both as an art and a science. This was illustrated by the results, they lacked nothing (Deut. ii. 7); their feet swelled not (Deut. viii. 4), a phrase illustrative of their general hardihood and health; their women were invariably prolific (Deut. vii. 14); so were their cattle (Deut. vii. 14); both men and animals in the worthier tribes increased largely; so that doubtless for their lack of faith at Kadesh, they would probably all have entered Canaan instead of being cut off at an early age. For, as a rule, Jehovah works His will and His purposes by the agency not of miracles, but by His own ordinary laws and forces; and just as the lives of many culprits were cut short by ailments sent by Him; so, much of the healthiness of the Hebrews as a whole, now spoken of, was no doubt due to their consummately devised and well executed public hygiene; masterly both in conception and in practice, and acting supplementary to God's special sanitary care. And if the entire system was not always and fully satisfactory in the instance of the Hebrews of the Wanderings; this was clearly not Jehovah's fault or due to the weakness of His sanitary system, but wholly the result of the folly and ignorant wilfulness of these most interested, the Hebrews themselves. Indeed, Jehovah would find it infinitely easier to make and formulate the forces and the laws of hygiene, promulgated at Sinai, than to lead or compel the Hebrews He was chiefly and directly benefiting by the bequest, to follow His advice, to contribute thereby to their own happiness, health, vigour, and longevity, individual, tribal, and national. Like their ante and post-diluvian predecessors, the Hebrews brought their diseases and disasters on themselves; and practically in large measure

cancelled their highly-efficient sanitary system and environment: as we too often do at the present day.

It seemed only appropriate that the nation thus honoured to inaugurate and in some degree to exemplify a new semi-Edenic and ideal dispensation, in which supreme love of humankind to God, peace and goodwill on God's part towards Man, were to be the ruling motives, as codified in the Decalogue, should also be the instrument and people by which a new and monumental departure in medicine was to be instituted and tested; namely, that science, the medical, which, more than any other, not even excepting the clerical, has for its creed, universal benevolence and brotherhood, without reference to religious belief, colour, age, or social position; and aims only, like its head and patron, the great Physician, at "going about continually doing good."

This, the installation of a new medical method, art and science, not in a crude but in a fully developed and elaborated, methodized and extended form, devized not by a human physician, but by Jehovah, forms the first chapter, not only in the history of hygiene, but in the history of medicine; appropriately so, for it is admittedly the higher of the two great departments of medicine, namely, the preventive and the curative. Study will shew that the Hebrew public, like its personal hygiene, though ancient from a human standpoint, is not so from a Divine; but forms the laws of sanitation for all time and all humanity. Made for Man, they will last unchanged as long as the race. Nor are they antiquated, but unsurpassed and incomparable; meant to be studied, followed, and imitated. They are of intense interest, not only because an emanation of the Divine mind, the mighty Counsellor and supreme wisdom; but as marking an important era in the early history of mankind: and the birth of that science which was now and for the first time manipulated with a view to combat body sickness in the manner best adapted to fight soul disease or sin; namely, by prevention, as contra-distinguished from cure: thereby forcibly inculcating the priority, greater efficacy, and importance of the former both for the soul and the body. Thus once more proving that the Lord's commands are "exceeding broad," far-reaching, and comprehensive, with nothing narrow-minded in them.

To these, although the two millions of the Exodus were no doubt in the main ignorant and indifferent, because of low intellectual, moral, social, and spiritual capacity, still a fair proportion, although the minority, namely Moses, Aaron and his sons, Miriam among the women, the Levites, Princes, Captains, and Elders, knew and were no doubt proud of the rôle they and their nation were meant to play in the spiritual, moral,

social, and hygienic regeneration of their race and humankind; and would fully appreciate and endeavour to promote and spread the public hygienic laws which God has bequeathed, and in His own comprehensive and world-embracing manner. It was the Deity's primary object, by the agency of the better class, to educate the world up; and imbue the former so as to teach themselves, as well as the nations generally, ideas, sanitary and otherwise, like His own.

In order to shew how the Divine Sanitarian effected His great hygienic object, and kept the Hebrew health in such a high state of efficiency, it will be necessary to make the hygiene of the camp and that of the all-important tabernacle, special and separate studies; and to follow this up by examining the other more prominent sanitary factors in the public hygiene, seriatim, namely, food, drink, air, rest, exercise, mental, moral, spiritual culture, &c., &c.

The great importance with which the public hygienic laws of the Sinaitic Code were regarded by Jehovah, their initiator and author; and their potency and value for preserving the public health and saving it from sickness, may be inferred by the stringency with which they were enforced and the penalties imposed for disobedience; which were of such a nature that few cared or dared to disobey. On the other hand, their great and lasting value is attested by their efficacy on the race and their perpetuity in it. And its maxims include two prominent factors as those the most necessary of all for the proper sanitation of camps, cities, and communities; namely hyper cleanliness as one of the chief preventives of infectious and contagious diseases; and their system of the compulsory, not voluntary, segregation of the ailing for opposing the inception and spread of such ailments. On the entire subject of public health and its necessary laws, the Sinaitic code, in pithy yet clear language, is especially full, minute, and worthy of study. The Jews still wisely follow their ancient code. They have not yet and indeed could not find a better. No other has been found necessary or acceptable for change of locality and environing conditions. And few of any people among the entire 1750 millions that inhabit earth are so healthy, long-lived, so permanent, ethnologically and anthropologically unchanging as the Jews: a fact due partly to Jehovah's special care and partly to His wonderful health laws, divulged over 3,000 years ago at Sinai.

It will be sufficiently obvious, in studying the Hebraic public hygiene, that just as the hygiene of individuals, Hebraic and Gentile alike, is often materially affected by sex, age, rank, occupation, idiosyncrasy, temperament, &c.; so is that of other nations by other special conditions and environments. Of

these the main and more potent are locality, climate, and civilization. This was especially evident among the Israelites. Hence it is that in this more than in any other respect the elastic and far-reaching public health hints for the Israelites, and indeed those of the Bible generally, are not only special and adapted for that peculiar and specially cared-for, because selected, people, under very anomalous circumstances, but for all peoples under all conditions and mutations of ordinary human life. With the Hebrews of the Wanderings these circumstances necessitated particular attention to certain subjects; and matters of great importance to them, although of less interest to other peoples and places and conditions: and also slighter attention to other items of greater interest and import to other regions, hygienic environments, and peoples. Thus, the subject of ventilation, one of primary importance to dwellers in the close, dense houses of cold and even temperate countries, was of comparatively slight moment to Hebrews living in tents, that is practically in the open air. Hence, doubtless, why on this subject we find no precise laws laid down. So also little of very deep sanitary importance is said regarding clothing; except concerning its relation to infection and infectious diseases; because their equable or warm atmosphere, and their simple unostentatious, nomadic, shepherd life necessitated little change of garments. So also, water and milk being their chief beverages in the Desert; the great and important modern subject of intoxicating wines and liquors is seldom alluded to in the Pentateuch; and is mainly spoken of elsewhere, in other regions, especially in later times, when the tribes had settled in the fertile grape-producing Judea. Again, rest and exercise are also little dilated, as of comparative unimportance during their simple, regular, unvarying life in the Wilderness, where they had no call or special inducement to deviate far from a safe amount of the former, and a judicious indulgence in the latter. On the other hand, the subject of cleanliness is fully, frequently, and minutely spoken of and legislated for: because their ways, climate, and comparatively sedentary life necessitated great personal attention to this matter, especially in Jehovah's eyes, who knew the reason why better than they did. While again their aggregation in a camp, and their frequent sacrifices in the very centre of this, required the fullest care of their public hygiene, especially as to the cleanliness in and around their tent, dwellings, and streets. So also the public rules for the prevention of contagious diseases by isolation, disinfection, and hyper-cleanliness, were particularly minute: because the Israelites were massed together under a combination of circumstances, extremely likely to beget those ailments often grouped together as filth diseases, an apt term that indicates

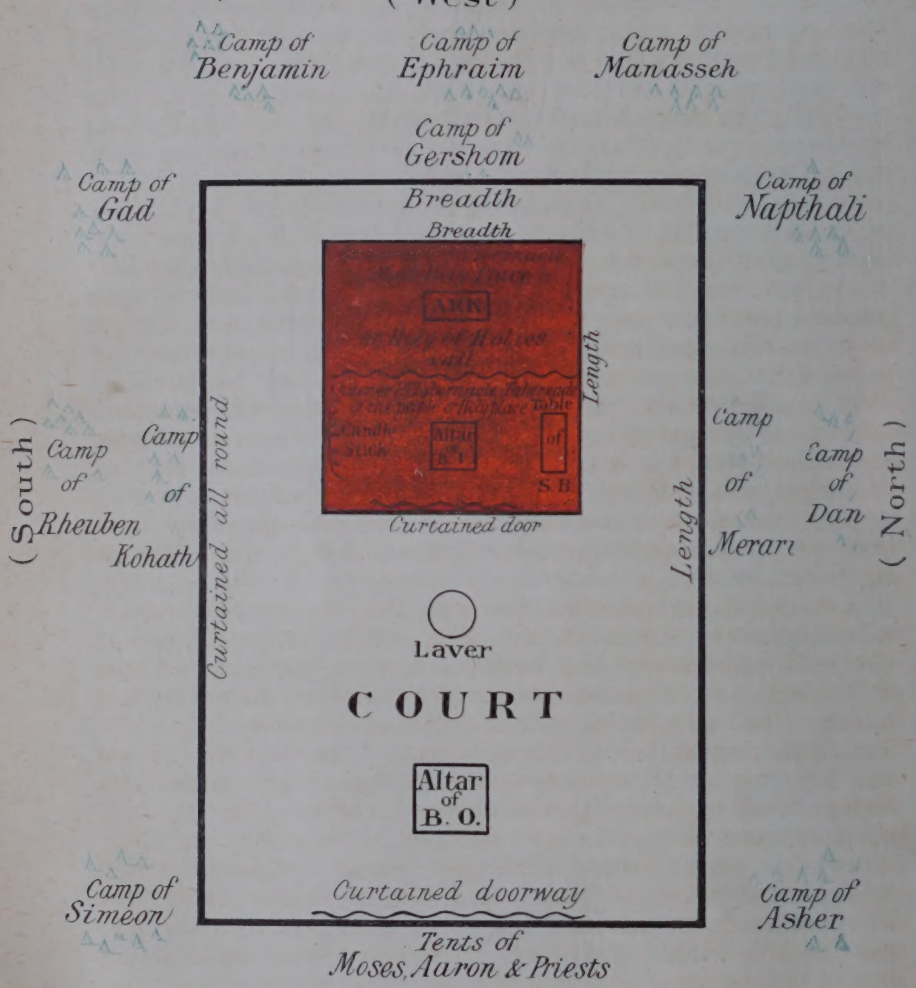
their affinity and origin. The Jews, both individually and nationally, and like other people, required their own special modifications both in personal and in public hygiene; based in their case, as in others as well as in ours, mainly on the latitude in which they lived, and thus on the clothing, food, and housing they required. Thus, Judea was colder than either the Wilderness or Egypt. The northern parts of Judea were colder than its southern regions. But Judea was better watered and a better food-producer than the Wilderness. Moreover, our attention must also be directed to what the Holy Scriptures say regarding certain other matters not included under any of these heads, and are more strictly and purely of communal importance; namely dwellings, garbage removal, disease prevention and disinfection. But in all our studies of Hebraic and Bible public hygiene, and especially in contrasting this with our modern and human systems of sanitation, we must never lose sight of the Divine element in caring specially for that particular race on the one hand, or specially punishing them in accordance with and in fulfilment of prophecy; a factor which no doubt often interposes now and affects Hebrew health for good or evil, as it certainly did during the Wanderings and during the subsequent occupation of the Promised Land.

The entire Jehovistic system of public hygiene, like His code of personal sanitation, was in its great outlines complete. It was not merely public but of universal and world-wide application. Adapted not only for the Jews but for the Gentiles; for uncivilized and semi-barbarous as well as for civilized races. Nay, it is of racial application and fitted for every creed, colour, and clime. Many a nation nominally enlightened, but sanitarily dark, even at the present day, would benefit materially by its adoption. How much money and how many troubles, direct and indirect, which flow from the advent of disease, would villages, towns, cities, nations avoid were they individually and collectively as well enlightened as were the Hebrews after a time regarding health matters, as detailed in the Holy Scriptures; and followed them as closely as did they, it would be impossible to say. Or to reckon how many more would live than now to be older men and women, and attain the Scriptural "three score and ten"; how many would live happier because healthier lives; how much the strength and vigour of families, nations, and races would be increased thereby; with all the indirect benefits to commerce, agriculture, art, science, and philosophy that would indirectly flow from stronger frames and more vigorous intellects.

As with their personal hygiene, so with the public sanitation of the Hebrews: it was not the idea or development of Moses. It was not an outcome of His life-long study and ex-

perience. The whole was Divine and Jehovistic. What nation has ever had its parallel? Could the Israelites have had better sanitation? Could they have had a wiser or more capable sanitarian? Could any modern sanitarian or conclave of hygeists improve on His methods? Is it beneath the dignity of the most enlightened of humankind, scientists or philosophers, to seek or receive instruction in hygienics from Holy Writ? "The law of the Lord is perfect, converting the soul. The testimony of the Lord is sure, making wise the simple" (Ps. xix. 7). How many are the human souls that require conversion and enlightenment regarding the importance of sanitation and the value of the Biblical hygiene, especially that of the Pentateuch? Humankind is but too apt to overrate its own intellectual acquirements and to minimize those of God who bestowed them. Jehovah, the omniscient, values them at their true worth. "Vain Man would be wise" (Job xi. 12). It is both an instinct and a duty to search for wisdom. But yet, even with our most gifted, of whom we may take Moses as a type, "the Lord knoweth the thoughts of the wise that they are vain" (Ps. xciv. 11). That "the wisdom of this world is foolishness with God" (1 Cor. iii. 19) is as true of material as of spiritual things, both then and now. Much of what Man often "discovers" is "foolishness," because uncertain, indefinite, or incorrect. The human philosophy of the ancients is succeeded by that of succeeding generations. The science of one century or even decade is replaced by some newer development. How different is the science and philosophy of Holy Writ, in which Jehovah is educationally and beneficently revealing and developing for our use the laws and forces which He has made; and aiding short-sighted Man in developing the knowledge, and putting this to practical results. So with the Divine hygiene, the public as well as the personal. It is perennial and eternal. It forms part of the immutable laws of God's handiwork—Nature. Like the Decalogue, no Man can improve on it: or codify so pithily, wisely and well for all mankind and for all time. Jehovah's wisdom and power are as great and trustworthy in sanitary matters as in all else. And the very wisest of moderns can find no better counsellor than Him and His Holy Bible.

Plan of the
HEBREW TABERNACLE
and CAMP



CHAPTER XVI

THE HYGIENE OF THE HEBREW TABERNACLE

"And cleanse the Sanctuary" (Ez. xxxxv. 18; Lev. xv. 30; Deut. viii. 14; 2 Chron. xxviiii. 18).

To many the Hebrew Tabernacle may seem a strange, out of the way, and not very interesting theme; and its study, for practical purposes, little more than a waste of time and energy. And it may be asked, what importance, except to the archæologist, the student of Bible lore, or that of ancient history, can be claimed for this small, old-fashioned, primitive, humble and temporary Jewish structure? What instruction, and, above all, what sanitary lessons may be derived from this seemingly odd Biblical source; and from a critical survey of the hygiene which is not only Jewish, but over three thousand years old; and by a comparison of this with that of the present day?

Let it not be forgotten, however, that the one consists of scientific matter which, though in a human sense ancient, is wholly Divine, mature, and perfect: whereas the other consists of that which is altogether human, and therefore imperfect and fallible. And a more apposite question would therefore be, can Christians, commanded to "search the Scriptures" (John v. 39) and who, let it be ever remembered, have been placed by Heaven itself under restriction neither to add to, detract from, or misinterpret the invaluable handbook of their religion (Deut. iv. 2; Rev. xxii. 18-19); glean any helpful health-hints from the Levitical code; or learn aught else previously undetected or overlooked in this early part of the inexhaustible and encyclopœdic Holy Scriptures? To this query the unhesitating answer is, yes, assuredly they can.

This part of the Mosaic hygiene should therefore be approached with none but a single eye, and with the highest and purest of motives; and mainly for the following objects:—

1. To further God's glory, and illustrate the comprehensiveness of His paternal care of mankind.
2. As a means towards the attainment of what God requires of the race, that we should be "perfect with

the Lord in all things" (Deut. xviii. 13; Heb. xiii. 21; 2 Tim. iii. 17).

3. To promote the fulfilment of His gracious and sure promises, that mankind shall ultimately "all be taught of God" (John vi. 4); and that we may become "fellow helpers to the truth" (3 John viii.).
4. To prove that this Divine teaching has been proffered for the last 30 centuries, though unwisely, ungraciously and grievously ignored.
5. To shew how much life, health, and sanitary enlightenment mankind has lost by their little less than criminal negligence of supernal instruction in sanitary subjects.
6. And to shew that no part of the entire Mosaic hygiene illustrates every one of these important points more fully and clearly than does the sanitation of the Hebrew tabernacle.

This, therefore, is clearly a subject that merits our deepest reverence; and one that should be approached with equivalent awe, and even as Moses neared the burning bush (Ex. iii. 5). For any one, and especially for a layman to analytically criticize the Hebrew tabernacle; that structure which formed the spiritual, moral, social, and physical centre of the Israelitish camp; and that erection which was for a season Jehovah's dwelling place, seems as great temerity and almost akin to entering the mysterious and forbidden Holy of Holies, and touching that most cardinal of all the tabernacle furniture, the Ark, which in turn formed the sacred centre of the most primitive of all ecclesiastical edifices. At the same time it is a theme that deserves our highest regard from a purely humanitarian standpoint. For, like that of the camp, so the hygiene of the tabernacle did not consist so much of personal as it did of public and communal, nay, of national sanitation; and is thus correspondingly important and valuable.

Closer inspection and a more intimate acquaintance with the subject may, however, suffice to alter even cherished and deep-rooted adverse opinions. And may at least serve to shew that the Hebrew Tabernacle was one of the most noted and sacred edifices ever erected on earth: and that, on the other hand, this building not only required but had more care of many kinds, and that from the most august of sources. Moreover, it proves that this care included far more sanitary attention than any other human erection of any age or nation; and more than any other part of the far larger Hebrew camp, of which the Tabernacle was the focus, and of which its sanitation formed the most important part. From many points of view, therefore, the Tabernacle of the Wilderness and the sanitary science its history discloses deserve both high veneration and deep study.

As with the Biblical, Mosaic, or Hebrew hygiene in its entirety so with its sub-division, that of the Tabernacle. Those who deem that its sanitation and all the other details pertaining to that temporary structure are unworthy of serious tuitionary study, because ancient, and therefore perhaps antiquated; or because it is Jewish, and therefore inferior; or because it is Biblical and therefore medically unauthoritative; or because it is Mosaic and therefore non-professional and purely human; will find, on closer survey that on one and all of these points they are greatly mistaken. And will be led to perceive that the hygiene of the Hebrew Tabernacle is neither out of date, nor obsolete; and that though not of Gentile origin it is exceedingly advanced; though Scriptural it is pre-eminently authoritative; and that, though called Mosaic, it had a Divine source. And they will agree that so far from being a waste of effort, it is highly educational to re-study from a different, namely, not from a purely clerical but from a medical and hygienic standpoint, the writings of one, who, as Jehovah's agent and mouthpiece, did more for the Church than all of the early Fathers of the Dark and Middle Ages put together; the man who had more to do with this, the most antique and still the most historic of all ecclesiastic erections; and was not only the nominal architect of the Hebrew Tabernacle, but also its historian, and the collaborator of the many and valuable laws and law codes that issued from the darkness of its Holy of Holies. And, although the day and use of the Tabernacle have passed, and the life work of Moses, the chief figure in its history, is done, Christians should with avidity read the history of this God's first Church on Earth, erected for the pioneer, God-fearing, God-serving community, the Hebrews: a Church that has handed down, to Jew and Gentile alike, its early but still leading law code, known as the Decalogue, not to one but to all of our modern religious assemblies; because in reality it comprises the eternal laws of Heaven; the unalterable, inalienable code meant for universal humankind and for all time; and which includes a systematized series of sub-codes for Man's spiritual, moral, social, hygienic, civil, political, commercial, and poor-law guidance; that together form a complete code superlatively adapted to promote the highest human prosperity and the greatest earthly happiness. And intellectual minds who study God's works, and who in astronomy, geology, and anatomy strive to unravel the architecture of the Heavens, Earth, and Man; and learn therein to trace the hand of the Almighty designer; should not disdain to investigate the construction and working of the seemingly more lowly and apparently less interesting Hebrew Tabernacle, especially as it is a theme of infinitely greater personal interest than these;

since from this Tabernacle there emanated laws that have elevated and benefited the Hebrews, ever since; that have benefited and elevated the entire Christian world; and that will go on benefiting and elevating and civilizing Jew, Gentile, and all mankind as long as the human race exists: laws, moreover, that include an important, pioneer, comprehensive, suggestive, and far-reaching code of health maxims, which have practically lain dead and buried for centuries, although often perused by Bible readers and students, the hygiene of the Hebrew Tabernacle being one of its most important outcomes: laws that are of the utmost interest and value, not alone to Earth's 448 millions of Christians, but also to the entire 1,700 millions who directly or indirectly share this benefit. The literary archæology of the Holy Scriptures themselves is as fruitful and convincing regarding the veracity, beneficence, and incalculable value of the Mosaic record, as is the physical record of Palestine, Egypt and other Biblically-historic lands; now so productive as witnesses corroborative of the truth of our ancient sacred records, known as the Holy Bible.

All that directly or indirectly concerns the Hebrew Tabernacle ought to have especial interest for medical men and Divines. For it was from this that the main lessons of scientific sanitation and practical hygiene, spiritual, moral, social, and medical were chiefly promulgated: and that in a most epitomized and emphatic form. And let it be ever kept in view that these priceless educational hints emanated not from the Hebrews, nor from Moses, their Heaven-gifted lawgiver; nor from their High Priest Aaron, nor from any of the Priests or Levites; but from the Divinity. And that one of Jehovah's first acts, after taking possession of the Tabernacle, built expressly for Him after His own pattern, was to give the chief fundamental facts of one of the most beneficent of all sciences, and new to the world of that day; namely that of medical sanitation or hygiene, for the Hebrews first to utilize and prove practically, and for mankind to subsequently elaborate and apply to the entire human race.

Most people at the present day, and at least all medical men, are aware of the important rôle which sanitation plays in modern medicine: and of the proportions which its study has assumed, especially within the past 30 or 40 years: and the strides by which it has been brought so much to the front as to have made it the leading branch of medicine. Let us now travel back over thirty centuries of years to the days of Moses and the eventful wanderings; and for a little study the sanitation of the most prominent part of the entire Hebrew camp, namely, its Tabernacle, and thereby, if possible, for instruction (2 Tim. iii. 16) contrast its hygiene with the sanitary science of the present

day. In other words, let us compare the Divine hygiene, as promulgated to the Hebrews over 3,000 years ago, with our apparently more elaborate modern sanitation. For let it be here distinctly and at once understood that the hygiene of that distant period, though called *Mosaic* by Divine sanction and example, was really Jehovistic: Moses being only the receiver and recorder of this revelation, sanitary and otherwise, from God to Man; in short, God's mouthpiece and agent.

The present theme, even more than any other part of the Mosaic hygiene, carries us back to what may be termed the birthday of sanitation, as a department of medicine; and to the earliest appearance of what was destined ultimately to be what it has now indeed become, the leading department of the healing art: the first enunciation, and that from this superlatively sacred edifice of its great and leading principles as a philosophic science; all the more precious and invaluable as being a revelation of the formulated ideas, not of Moses or any other human being, but those of the All-wise and the All-knowing, on the subject of sanitation; and therefore to be received both in the light of a command and a lesson, not to the Hebrews alone but to humanity, especially those whom the Holy Scriptures have reached.

Every one of the multiple conclusions and deductions given elsewhere (Part 4, Chap. 1) regarding the Mosaic code, are not only specially proved but emphasized by the hygiene of the Hebrew camp, and especially by that of its pivotal and most important part, the Tabernacle, constructed about the year 1491 B.C. There is no part of the hygiene of the Hebrew camp in which the loving and beneficent forethought and wisdom of the Creator is more fully shewn than in the sanitation of this, its centre. And nowhere is the supremacy of the intellect of the All-giving and All-knowing Divinity, as contrasted with the comparatively weak sanitary efforts of humanity, better manifested. For the hygienic rules and plans of which we are about to speak, like all other parts of the Levitical law, of which they form an integral part; though termed Mosaic by Divine sanction and example, were really the creation of the great Author of the superb series of vital, hygienic, physical, and all other forces and laws that govern God's great creation. That is they are the work of the best and indeed Supreme Legislator not only in sanitation but in every other conceivable subject; inasmuch as the Deity, unlike His handiwork, Man, is infallible.

The hygiene of the Hebrew Tabernacle is necessarily part of that of the Hebrew camp: and therefore its special study is not only important and desirable, but also in a sense imperatively necessary, in order to ascertain how far Biblical and

secular, human and Divine sanitation for camps and other communities agree or differ: and to find out if it is possible to glean any sanitary hints or hygienic instruction therefrom, especially for camps or communities, each and all both of great personal interest and still more of vast national importance: inasmuch as this is clearly, like all other portions of "scripture is given by inspiration of God," and is clearly, therefore, "profitable for doctrine, for reproof, for correction, and for instruction in righteousness" (2 Tim. iii. 16). To few parts of the Holy Scriptures are these words more applicable than to the magnificent code of laws given to the Hebrews and to Man, to promote their earthly and eternal welfare. And of these, to none are they more applicable than to the sub-code which bequeaths instruction regarding our bodily welfare. The study of the Tabernacle hygiene, which forms an important part of this sub-code, seems calculated to confer all four of these beneficent and salutary boons. For:—

1st. Was not the Mosaic law specially *inspired?* Was it not revealed direct to Moses, and not merely compiled from ancient manuscripts and legends, like a large part of the Pentateuch? Is it not, therefore, more than almost any other part of Scripture given by its receiver and transmitter in the very words of Jehovah? And is it not thus all the more likely to be both verbally and medically correct?

2nd. Moreover, does not a close study of the Mosaic hygiene still furnish mankind, even the most intellectual and enlightened, as it did the Israelites thirty-five centuries ago, with much new, interesting, and important *doctrine* in sanitary matters, that ought to inculcate God's superlative wisdom, love, and pity for humankind?

3rd. Again, does not the discovery of Man's long and unmerited neglect of these hygienic laws, from the era of Moses downwards, become at one and the same time a *reproof* to humankind for having "cast them behind their backs" (Neh. ix. 26); and at the same time *correction* for our indifference, lack of faith and conceit in neglecting the hygienic revelation so benignly bestowed.

4th. And is it not likely they give us the best of all *instruction* in the *righteousness* that is manifested by our not only believing in but accepting and fully following God's hygienic laws, because they are as wise, imperative, and obligatory as are all His other commandments, physical, physiological, moral, social, spiritual, and otherwise.

Moreover, it seems especially necessary to study the hygiene of the Tabernacle minutely and particularly; because Jehovah evidently gave unusual attention to this, so that it presents distinct and by no means unimportant hygienic factors well worth regard, not only from a medico-historical and medico-archæological point of view, but also from an educational standpoint; and one which is not likely to be devoid of value, inasmuch as these commands comprise rules which have both a private, a public, a national, and even a racial bearing. And again, in none of the many different departments with regard to which the Mosaic code legislates, is the wisdom, prescience, and sanitary acumen of the Divine Hygeist, who revealed these multiple health laws for the benefit of the Hebrews, and through them the world at large, better shewn than in the regulations, sanitary and otherwise, laid down for the management of the Hebrew Tabernacle in the centre of the much larger Hebrew camp that surrounded it. For, let us recollect, it was not the sanitation of the Tabernacle *per se* which the Deity had to conceive, work out, and codify. It was that of the Tabernacle as the physical church, the only church, and that a very small one for a vast tented city of over two millions of souls; frequently inordinately crowded, often sullied by the congregation of worshippers, and, above all, soiled and contaminated by their sacrifices.

Two distinct tabernacles are mentioned in the Pentateuch. The first, which does not materially concern us here, was a small temporary structure erected by Moses, no doubt after his own design (Ex. xxiv. 4; xxxiii. 7). This was for use until the more permanent tabernacle was ready; but was placed outside the camp as a mark of punishment and warning to the Hebrews, then in disgrace for having fashioned and worshipped the golden calf. This was called the "Tabernacle of the Congregation" and was used for giving audience, hearing causes of controversy, enquiring of Jehovah, and perhaps for solemnizing worship. The second tabernacle, and that which more particularly concerns us, was of considerably greater requirements and larger capacity: and was that familiarly known as erected by Moses and his subordinates for and by Jehovah's commands (Ex. xl. 34-35). This was named "the" Tabernacle, that is the dwelling place of God. Like the Decalogue and other codes of the Mosaic law, the directions for the erection, conduct, safety, sanitation, &c., of this was divulged to Moses by the Deity that he might thereby teach the Hebrews (Ex. xxiv. 13) lessons of several very important kinds. This Tabernacle, which lasted during the remainder of the 40 years' Wanderings, is that we are now to specially study. Its evolution dates from the 40 days and nights that Moses spent on

Mount Sinai by God's command. It was then and there that Jehovah delivered the great group of laws known as the Decalogue or Ten Commandments (Ex. xix. 23); followed by various other laws in epitome, mainly social, civil, and political. These Jehovah followed by making a covenant with the Hebrews, and followed this up by an imposing and conclusive vision of the Divine glory (Ex. xxiv.) to a chosen few, consisting of Moses, Aaron, Nadab, Abihu, and the 70 Elders. Moses, who already had twelve months' experience of the unruly Hebrews, no doubt felt then that before him lay a task and a problem of great difficulty; namely, to find fit symbols by which to embody those great truths of which the chief had already been revealed to him, but without which Israel would ultimately sink into brutality: and to employ such methods as would save them from evil, and from degrading idolatry like that of Egypt, to which, while in Goshen, they had become so familiarized. Fortunately this problem, the evolution of a Church, and of a temple for its use, and of a religious ritual for worship, were not left for Moses or humanity to solve. For, by Jehovah's directions, and probably in a vision, there arose before him the pattern of the future Tabernacle for the constant worship of Jehovah, as God Himself had designed and desired it to be (Ex. xxv. 9). This Moses was required to follow closely, even to the minutest detail (Ex. xxv. 40; xxvii. 28). The pattern of its furniture and all its accessories was also similarly revealed (Ex. xxv. 9). Moreover, Jehovah's directions for the Tabernacle were given to Moses, as was the Decalogue, not from the secrecy of the Holy of Holies at the foot of Sinai, but from Mount Sinai itself, to indicate their importance, and to shew that just as the latter was by far the most important part of the Mosaic Law, so the other was a very sacred corollary and addition to it; as well as an important part of the Hebrew religion, and of their duty to God. Thus it was that Jehovah commanded Moses "thou shalt rear up the Tabernacle according to the fashion thereof which was *shewed thee in the Mount*" (Ex. xxvi. 30; xxxv. 39). The pattern of the furniture and instruments in detail was also shewn Moses to copy from (Ex. xxvii. 8), even to their minutiæ (Ex. xxv. 8-9, 40; Ex. xxxi. 7-11; xxvi. 30). Accordingly, "thus did Moses according to all that the Lord commanded him, so did he" (Ex. xl. 16). The longer and more important of the sanitary details connected with the cleanliness and general hygiene of the Tabernacle, to be hereafter more fully described, were however subsequently devised, formulated, and revealed to Moses, and not till after the erection and completion of the edifice, and then from the darkness and the mystery of the Holy of Holies (Ex. xxxiii. 11); to be written out by him at leisure and left for posterity

under the name of the hygienic law of Moses. Consequently this sub-law, the hygienic, clearly forms a most important part of the Mosaic Code; a part which, though hitherto practically ignored, becomes all the more valuable, because it embraces sanitary maxims and hygienic truths of world-wide application and of time-lasting import; and that are in short the everlasting sanitary laws of Creation.

The object for which the Hebrew Tabernacle was devised was a multiple one; thus:—

1. It was meant to be the sole accredited earthly abode, sanctuary, and temple of the unseen but yet Divine and true leader, guide, preserver, maker, and God of the Israelites; and the school from which the educator of His chosen people and scholars received their manifold and very varied lessons and laws. Jehovah said to Moses, "make me a sanctuary that I may dwell among them" (Ex. xxv. 8). The nation whom Jehovah had thus "severed from other people" (Lev. xx. 26), and set apart for the beneficent object of being His agents for the education and evangelization and reclamation of our fallen race; consisted, not like most nations, both ancient and modern, of a mixture of different races; but of kinsmen of various degrees of relationship. They have been variously named in the Holy Scriptures; and mainly after what Jehovah intended to have made and to have kept them, had they fully acquiesced. Thus we find the Hebrews of old called "God's redeemed people" (Ex. xv. 13); "a peculiar treasure" (Ex. xix. 5); "Children of the Lord" (Deut. xiv. 1); "God's people" (Lev. xx. 26); "Holy to God" (Lev. xx. 26); "a hallowed nation" (Lev. xxii. 33); "an elect race" (Is. xlv. 4); "a holy nation" (Ex. xix. 6); "Holy men" (Ex. xxii. 31); "a kingdom of priests" (Ex. xix. 6); "Royal Priesthood" (1 Pet. ii. 9). In order to effect His God-like purposes towards our rebel race, God honoured the Israelites still more highly. The Holy Scriptures record three noted occasions when either the first or the second person in the Trinity deigned to visit Earth for Man's special benefit; a fact which necessarily includes the welfare of him who writes and of those who read these pages. Somewhere in yon galaxy of countless stars and star-groups there must be some humanly unknown place, region, or orb called Heaven—God's home and throne; where, amid love and light ineffable Jehovah wields His creative and protective power over Nature's vast domain; the countless orbs of which

wheel round Him, their great source and centre, in mighty and ever widening circles. The first of these occasions was when He left this supremely Holy and happy abode, where sin and sorrow are unknown, and came to this insignificant and far-off Earth to walk and talk with the still unfallen Adam and Eve in Eden, to strive by His friendship and counsel to keep them pure and loyal to Him alone. The second occasion, a still greater honour and condescension, was when Jehovah came to earth to educate a select, peculiar, and holy nation for His special honour, glory, and service, to enlighten the world in holiness and wisdom, and bring back our now fallen race to His sole allegiance. To effect this He deemed it necessary to come and dwell in their midst; and in the very centre of the Hebrew camp, made the Hebrew Tabernacle we are now studying, a structure designed by Himself, His temporary home; thereby investing this otherwise insignificant building with a dignity and a glory possessed by no other earthly edifice, not even the far more magnificent temple subsequently erected by Solomon at God's command, to supply in some measure the place of the first far smaller but infinitely more glorious Tabernacle of the Wilderness. Of the third more momentous and self-denying occasion, when the Second Person in the Trinity visited Earth, and in the personal form and nature of man lived and died for Man's redemption, we have here no call to speak. In this Tabernacle, therefore, Jehovah, who styled Himself "the God of the Children of Israel" (Ex. xxix. 45), dwelt permanently with this selected nation, the Israelites (Ex. xxv. 1-8; Acts vii. 44; Heb. viii. 5). And the dominant thought which the Hebrew Tabernacle was meant to inculcate, seemed to be that of the never-absent presence of the Divinity in their very midst, protecting, ruling, and judging them. The Hebrew Tabernacle was thus practically a sacred tent; or moveable Bethel. The presence of this migratory temple or church, the first ever erected, and that for the first large God-fearing community, formed a salient part of Jehovah's new scheme for Man's redemption and reclamation; a plan by which the Hebrews were to have been educated as a model race for universal human enlightenment, under the direct personal tuition of the Almighty; and mainly by His chosen mouthpiece and servant Moses. Hence the Hebrew Tabernacle was the only building, save

Solomon's Temple, in which Jehovah took special architectural interest; and this interest was greater than in the latter, for the early Tabernacle was more distinctively the Divine home than the later more magnificent erection.

2. To prevent misconception, Jehovah, though unseen, talked openly with the Hebrews at Horeb (Ex. xx. 22). But, having manifested His reality, this was now to cease. And the Tabernacle was made His oracle, where he met and communed with His mouthpiece, Moses; and thus indirectly kept touch with His chosen people. To effect this He spake from above the mercy seat and between the Cherubims, from amid the thick darkness of the Holy of Holies. It was there and thus that He revealed the majority of His laws; indeed all of these, except the Decalogue, the ceremonial law and a few others. The Holy of Holies was the Deity's sacred fane to which Moses resorted in difficulties, dangers, and emergencies, to ask Divine counsel, aid, or sympathy. Jehovah told Moses on Sinai, "and there I will meet with thee, and I will commune with thee from above the Mercy Seat, from between the two Cherubims, of all things which I will give thee in commandment unto the Children of Israel" (Ex. xxv. 22). The Tabernacle was the place where the mind of the great nominal Hebrew lawgiver, Moses, entered into the closest fellowship with that of the real Lawgiver, God (Ex. xxxiii. 11). "And when Moses was gone into the Tabernacle of the Congregation to speak with God, then he heard the voice of one speaking unto him from off the Mercy Seat that was upon the ark of the testimony from between the two cherubims" (Numb. vii. 89).

3. The Tabernacle was the Hebrew Church, the first sacred edifice of any large God-serving community, where the High Priest, Priests, Levites, and congregation sacrificed and worshipped in compliance with the religious ritual instituted by Jehovah. Here they prayed, praised, and heard or read the Divine law in community. Here the hygiene and the health of the souls, the hearts, intellect and morals; and those of their homes and social life, was promoted. The Tabernacle was the Israelites resort for sacred purposes, for sacrifice, and for communion with God. It was their school, where both adults and children learnt the law and were instructed in the knowledge of how God desired they should live.

4. It was the spiritual, moral, social, political, and national rallying point for the Hebrews; and a spot and edifice that they severally felt bound to uphold and protect.
5. The Tabernacle was the edifice, instrument, and method chosen by infallible wisdom, by and through which the Almighty indicated the supremacy, superiority of the Divine Government in the management of humanity and the world, as contrasted with all other methods: for the furtherance of the object for which Man and Earth were created, viz., the promotion of God's honour and glory. This is a subject never sufficiently realized by the great mass of mankind.
6. Still another function, and one not usually accredited the Hebrew Tabernacle was, that it was made to contribute specially and materially to the sanitation and health of the entire congregation and camp, as will be presently more fully explained. So that, to the main object of the Tabernacle, namely the inculcation of purity of soul, morals, and social life, in short, purity of the higher man, God superadded promotion of the physical, personal or body hygiene: and thus made these two go hand in hand, and thus caused Godliness to become in a double sense, great gain. The very minute directions found in the Pentateuch for the site, design, shape, material, and construction of the Tabernacle, as well as those for its ritual, sacrifices, ornamentation, furniture, priestly and Levitical apparel, functions, consecration, and everything else connected therewith, were all purely and entirely Jehovah's from the first (Ex. xxv. 26; Ex. xxvii. 30, 31, 35, 36, 37, 38). As with all in the Hebrew dispensation, God was the sole creator, originator, and suggester. Moses was only the recipient and transmitter of the mature and perfect ideas of the Supreme regarding the construction, decoration, general arrangement, and worship of the Tabernacle. Nor was he permitted to diverge in the slightest degree from what Jehovah had ordained. These commands Moses executed faithfully. So with the hygiene of the Tabernacle. Jehovah should clearly receive all the credit and the praise for its successful sanitary construction and evolution. Doubtless, as with the general arrangement so with the sanitation of the earlier camps with which Moses had to do: both were alike faulty and human. But this matter, the construction and sanitation of the Tabernacle was a far more sacred and serious matter. It was one in which mistakes, sanitary

and otherwise, once made, could not be so easily rectified. So in this also Jehovah again legislated alone; as the being who best and indeed only knew what He required; what He aimed at; and could satisfactorily legislate in a science new to the world and strange to the humanity of that early day, namely, the prevention of disease.

As it so happens, every one of these items connected with the Tabernacle, regarding which Jehovah gave such elaborate directions, had a very material influence, either direct or indirect, on its hygiene, and therefore on the sanitation of the Hebrew camp and entire congregation; and indeed some of them a very great influence. Hence it will clearly be necessary to enter briefly into certain essential details regarding these. Modern sanitarians fully recognize the influence which the construction, material, ventilation, site, cleanliness, &c., of any public erection or building have on its sanitation and its healthiness. We have, therefore, now to consider these seriatim, and mainly from a hygienic point of view.

The site of any edifice has a material influence on its hygiene. That of the Tabernacle was not at the outskirts of the camp or at a distance from it; but in its very centre. It was the pivot round which the Hebrews camped. Jehovah ordered it to be located there for diverse wise reasons; and mainly because He desired it should be the central figure and most important part of the Jewish congregation. Hitherto the tents of Moses, Aaron, Miriam, and their families occupied this position. These had now to give place to Jehovah. Even on the march the disjointed Tabernacle was still central. (See Chap. 17, Camp.) For then the tribes that when camped occupied the east and south were in front, while those of the north and west were in the rear (Numb. ii.). The centre of the camp and congregation was chosen as the site of the Tabernacle, because:—

a For a military reason, and motives of safety. This was obviously the least dangerous, therefore the wisest and usual place for kings, chieftains, and leaders to have their tents and to raise their standard. Each of the Hebrew tribes had its own ensign; but little that is certain is known about them. In this case Jehovah's standard was a supernatural one; namely the Shekinah, consisting of a pillar of fire by night and of cloud by day. From this central spot the commander-general or leader could best review the camp and issue orders. So here also Jehovah could best emphasize His constant presence as the Hebrews' supreme, Divine, unseen, and only God, leader, preserver, and

guide. Hence, as God's special abode on Earth, it was fitly and characteristically marked and seen over the whole camp. Here its defenders could best rally. These strange beacons would have been wasted in Goshen, for there the Hebrews were scattered. But now they were collected into one vast congregation and methodically grouped round the dwelling and symbols of the unseen Divine Captain of the Host, in definite order and according to tribal rank as God had directed. And let it be remembered, the Hebrews of the Wilderness were held together by religious more than by political bonds.

b There was also a religious reason. In the centre of the camp the Tabernacle was of easiest and speediest access for the entire congregation, coming as they did for worship and sacrifice from every quarter of the surrounding tent city; and from east, west, north, and south wherever they were camped. It was in the safest and freest place from interruption or desecration by hostile and heathen tribes from without. Thus its position clearly aided and facilitated the psychic or soul hygiene of the Hebrews by furnishing no excuse in distance or difficulty of access or danger, to prevent their presence for sacrifice or worship; as might have happened had it been placed either at the fringe or beyond the camp. The centre was evidently the most accessible of all sites for purposes other than religious. That site prevented inter-tribal jealousies. Like these Hebrews of old, men of all ages as well as of modern times have wisely, both on religious grounds and for convenience, placed their places of worship in the midst of their communities. So that untrammelled human heart-promptings have thus unwittingly seconded and followed Divine and early Hebrew example.

c The centre of the square or more or less rounded Hebrew camp was evidently the safest place in which to deposit the Holy things and precious treasures of the nation; namely, the Tabernacle, with its non-combatant retinue of Priests and Levites, and its contained ark, the invaluable contents of this, and the book of Moses.

d Underlying and supplemental to all this, but not less important, was the sanitary object inculcated by the site of the Tabernacle; which consisted in facilitating and promoting the medico-hygiene of the Hebrews and their camp, by aiding ventilation, cleanliness, dis-

infection, &c.; matters to be presently more fully illustrated.

e The conversion of the Hebrew Tabernacle into a sanitary instrument, conveyed the maxim and the moral, that the hygiene of the soul and that of the body may and should be combined, and when possible made to go hand in hand. Inasmuch as purity and healthiness of the one is closely allied to purity and healthiness of the other; and they are mutually helpful and educational.

The more immediate *surroundings* of the Tabernacle would also influence its hygiene. The curtained entrance to the Court and that of the Tabernacle proper both faced the east. This matter of aspect appears to have no very special sanitary bearing. Fronting the Court were the tent abodes of Moses, Aaron, and his sons. On the other three sides of the Tabernacle were the tents of the sons of Levi and their descendants, the Gershomites, Kohathites, and Merarites (see plan). These formed the first cordon of Tabernacle caretakers and defenders. Beyond these lay the different tribes, three on each side; constituting the second cordon of defenders. In the mass these were no doubt less cleanly and orderly and amenable to sanitary rules than the better educated and law-abiding Priests and Levites camped nearer the Tabernacle, and had more camp ground allotted to them. These items would materially influence the hygiene and healthiness of the Tabernacle and the congregation who resorted thither.

The capabilities of the Architect and the constructors would also have a very material influence on the hygiene of the Hebrew Tabernacle. Although Moses was the human, Jehovah was the real, unseen architect and superintendent, who not only instructed Moses as to the design, but gave him a vision of the Tabernacle, its furniture, and instruments, so that they might be made exactly as He desired them to be (Deut. xxvi. 19); and from which he was commanded not to depart. Constructed after the device of such a Counsellor, could the Tabernacle and all belonging to it be otherwise than perfect of its kind; or could its hygiene have been better devised? The gold, silver, brass, gems, wood, and the whole of the costly ornamentation and material were supplied by the Hebrew congregation; and given of the people's free will; who contributed so freely that they had to be debarred by proclamation from bringing more than enough. Everyone could testify his zeal, the wealthy by gold, silver, and precious stones; poorer people by skins and goats' hair; and the women by spinning the latter and also linen for the hangings and the roof. But it clearly was then, as perchance it may be at the present day,

that men of special talent, superior endowments, and eminent capacities for certain varieties of work are selected and appointed by Jehovah to perform special labour for Him and His cause. Such were Noah, Abraham, Moses, Aaron, and many other Bible worthies, in whom the spirit of God in "wisdom and understanding and knowledge" (Ex. xxxi. 3-6; xxxv. 30-3) was implanted by the Divinity. Assuredly the supremacy of Heavenly interest in human affairs is not sufficiently recognised. No doubt now, as in Mosaic times and for Tabernacle work, God puts it into the hearts of all that are wise-hearted, wisdom to accomplish special earthly duties for him and grace to acceptably fill particular mundane rôles. The Israelites generally contributed the ordinary labour for the construction of the Tabernacle, (Ex. xxxv. 28-29). But the principal master-workmen were selected by the All-wise and All-seeing as those of all the congregation who were best adapted by combined mechanical skill and religious zeal to carry it out. Chief among these, and those most deserving of record, were Bezaleel, of the tribe of Judah, and Aholiab, of the tribe of Dan (Ex. xxxi. 6). Neither of these were of the Priesthood or even of the Levites. Them God individually enlightened, instructed, aided, and gifted with unusual endowments and capabilities for work that had a specially Divine and spiritual basis. These Jehovah "filled with the spirit of God in wisdom and understanding and knowledge in all manner of workmanship, to devise cunning works, to work in gold and in silver and in brass and in cutting and setting of precious stones, and in carving of timber to work in all manner of workmanship" (Ex. xxxi. 3-5). Skilled workmen and wise-hearted men were also appointed "to work in all manner of work of the engraver of the embroider in purple and scarlet and fine linen and of the weaver, even of them that do any work, and of them that devise cunning work" (Ex. xxxv. 35). These doubtlessly benefited by instruction and enlightenment in the school of Jehovah. Their assistants were doubtless correspondingly Heaven-aided and God-taught for this essentially sacred duty. "For in the hearts of all that are wise-hearted I have put wisdom that they may make all that I have commanded them" (Ex. xxxi. 6-7). So, "according to all that the Lord commanded Moses, so the Children of Israel made all the work" (Ex. xxxix. 42). And "Moses did look on all the work, and behold they had done it as the Lord had commanded, even so had they done it, and Moses blessed them" (Ex. xxxix. 43). The narrative concludes thus, "so Moses finished the work" (Ex. xl. 35). Infinite care was thus taken to carry out the Almighty's instructions regarding the construction of His dwelling place; as will afterwards be seen regarding its ritual

and its hygiene. Medical men at the present day fully recognise the importance of superior workmanship of all kinds in contributing to make the sanitation of buildings, whether public or private, perfect; and that nothing is more apt to induce faulty hygienic conditions than imperfect building arrangements, especially regarding cleanliness, lighting, ventilation, &c. No fault could be found with the workmanship of the Hebrew Tabernacle. Hence this could only contribute to its healthiness as a public building, not the reverse. And, although this would necessarily be only a minor factor in the sanitation of a small and architecturally peculiarly edifice, like the Tabernacle; still, the sum total of health is often made up of, or is at least materially influenced by apparently insignificant factors of this kind; and it is well to realize that this particular one militates decidedly on the side of salubrity. And thus, as the Tabernacle rose in the midst of the Hebrew camp it embodied to its earthly architect, Moses, those manifold truths which Jehovah had divulged to His chosen servant. These he endeavoured to communicate to his brethren, the Hebrews; seeking thereby to transmit to his countrymen, for whom he lived and worked, the Divine education, one of symbols and laws, hygienic and otherwise, which he himself, the principal and no doubt the most apt and appreciative pupil, was receiving.

The *shape*, *design*, and *size* of a building or enclosure have a material influence on their sanitation and healthiness. The Hebrew Tabernacle consisted of an outer, oblong, open and curtained enclosure named the "Court" or "Tabernacle of the Congregation" or "Tent of Assembly" (Ex. xxvii. 21). This was about 175 feet long by 87 feet broad, and over 18 feet high: the curtained door or entrance at its eastern end being 35 feet broad. The furniture of the Court consisted only of the Altar of Burnt Offering; and the laver. In this Court the Hebrews might worship and sacrifice. Doubtless many of the Godliest Hebrews went daily to the Tabernacle to pray, and to hear the words of the law (1 Sam. ii. 22; Luke ii. 37). Very often it must have been crowded. Towards the further or western end of this Court was the oblong-roofed and therefore closed wooden structure, or Tabernacle proper. In size this was from 52 to 54 feet long; 16 to 18 feet broad; and 18 feet high; so as thus to be clearly visible to the entire camp over the curtain of the Court. The eastern or door end of this was curtained. Whereas internally it was partitioned by a curtain or vail into two distinct apartments, namely, *a*, the outer or Holy place, which comprised about two-thirds of the whole; and the furniture of which consisted of the shew-bread, a table for this, the golden candlestick, and the Altar of Burnt Incense: and *b*, the inner, or Most Holy Place, or Holy of Holies, which occupied

the remaining third; and the furniture of which consisted of the Ark, in which was kept: 1, the tables of the law or covenant; 2, Aaron's rod that budded; 3, the golden pot of manna; and the golden censer.

As in Egyptian temples of that day these different regions or divisions of the Tabernacle proper had different functions and graduated degrees of sanctity: thus—

1. Into the outer Court the congregation generally might enter for sacrifice or worship.
2. Into the outer or Holy Place of the Tabernacle proper, lit by the seven-branched golden candlestick, the High Priest or Priests might enter, clad in white linen and bare-footed, night and morning, to burn the ordained incense offering and perform God's service as ordained by law. So also might Moses, to confer with his Divine Master, who spake to him from the inner Holy of Holies beyond the vail and from between the Cherubims over the Ark.
3. Into the inner sanctuary or Holy of Holies, and amid its awe-inspiring mystery and holiness, only the High Priest might enter, and that but once a year, namely on the annual day of atonement (Lev. xvi. 34). On that special occasion he entered it clad in white and enveloped in a cloud of incense, carrying in his hand the blood of the prescribed sacrifice; but resuming his other gorgeous robes before re-appearing, to symbolize the completion of atonement. The Holy of Holies was kept in utter or thick darkness and silence (Ex. xx. 21); as it was there that the invisible yet ever-present Jehovah dwelt; and uttered His laws and behests to Moses regarding the Hebrews, other nations, and the race (Ez. xxxvi. 23). So, as the Tabernacle formed the physical centre of the Hebrew camp; so the Holy of Holies and its superlatively sacred furniture, the Ark, was the physical focus of the Tabernacle. Moreover, the entire edifice of the Tabernacle was constructed so as to be moveable (Ex. xxvi. 14); and therefore easily taken to pieces, carried, put together, and re-erected on each fresh camping ground. This was imperatively necessary, as each removal and march, of which 50 are recorded, involved the dismemberment of the entire structure; all of its parts being carted on wagons by the three divisions of Levites, namely the Kohathites, Gershomites, and Merarites. It was reserved for Aaron's sons however, as a special duty and honour, to prepare for removal by covering all in the Holy of Holies with a

purple cloth (Numb. iv. 6-15). Each of the three Levitical divisions had its own apportioned part of the work of removal (see Camp). It was mainly on account of these migrations that the Hebrew Tabernacle was not constructed of more solid and lasting material, such as stone or brick; but, like their tents, of more easily manipulated and removable material. Moreover, is it not just to surmise that this sacred edifice, as well as its furniture and utensils, were all and severally, like the Hebrew clothing, &c. (Deut. xxix. 5) well and Divinely preserved by special supernatural aid: superadded to the zeal and care of the Priests and Levites.

The *material* of a building and its quality have also much to do with its sanitary condition and efficiency. That for the construction of the Hebrew Tabernacle, like all else connected with that edifice, was selected and ordered, not by Moses but by Jehovah. For the Tabernacle proper, comprising the two holy places, this consisted on three sides of boards of Shittim wood, probably the Acacia Vera, "shunt," or gum-arabic tree. The advantages of this dark red wood were, lightness for carriage, durability, proof against wet, rot, and capability of taking a fine polish. These boards were held in place by transverse bars of the same wood. These bars and boards were overlaid with gold. The entire structure rested on a basis of silver. The hangings that covered these boards inside were of variegated stuff or fine twined linen, embroidered and coloured blue and purple and scarlet, wrought out by needlework (Ex. xxvi. 36-37). To this we must add the threefold covering or roof, consisting of *a*, an inner mat, curtain, or covering of woven goats' hair; *b*, a second covering of rams' skins dyed red; and *c*, outside of all, a covering of badgers' skins (badger, dolphin, or seal). The vail that separated the inner Holy of Holies from the outer Holy Place consisted of fine twined linen embroidered. So also the door or curtained eastern end of the Tabernacle proper which opened into the "Court" was composed of fine twined linen embroidered.

The furniture of the Tabernacle consisted of—

1. In the inner place or Holy of Holies was the Ark alone (Ex. xxvii. 34). This was a box of Shittim wood, with staves for carriage; both overlaid with gold. The cover of this or Mercy Seat was also of pure gold. The two cherubims attached to and over the Mercy Seat were also of Gold. This, the noblest of the metals, was expressive of the greatest holiness. It was in this dark and mysterious yet thrice sacred place, from over the Mercy Seat and between the Cherubims,

that Jehovah met, communed with Moses, and divulged most of His laws, the so-called Mosaic or Sinaitic code (Ex. xxv. 22). And it was directly over the Ark that, seen far and wide from outside, the Shekinah or symbol of the Divine presence and glory rested, in the form of a pillar of cloud by day and one of fire by night (Ex. xxv. 22; Numb. vii. 39).

2. The furniture of the outer or Holy Place consisted of—
   - *a* The Altar of Burnt Incense; a box of Shittim wood, overlaid with gold (Ex. xxx. 1). This always stood on the west or vail side.
   - *b* The seven-branched golden candlestick of pure gold, placed on the south side.
   - *c* The table for the shew-bread, with its staves, both of Shittim wood, covered with gold; and with dishes, spoons, covers, and bowls, all of gold; and located on the north side.
   - *d* The shew-bread.

   As indicated, each of these articles of furniture had its own appropriate place.

The Court of the Tabernacle proper, which surrounded and enclosed this, was merely a curtained enclosure, open overhead. Its curtains were of finely twined, netted, or open linen (Ex. xxvii. 9; xxxv. 17; xxxviii. 9; Numb. iii. 26; iv. 8). These curtains were supported by pillars with sockets, bosses, hooks and fillets, all of silver. The curtained east end or doorway overlooked the tents of Moses and Aaron (Ex. xxvii. 16; xxxviii. 18; Numb. iv. 6), who thus had easy and speedy access for duty or supervision. The furniture of the Court consisted of:—

- *a* The laver, made of brass.
- *b* The Altar of Burnt Offering, which was a hollow box of Shittim wood, 9 feet by 9 feet by 5 feet high (Ex. xxvii. 1), with staves for carrying, both covered with brass. The Divine order to build Hebrew altars either of earth or of unhewn stone (Ex. xx. 25), made by Jehovah in Sinai, was evidently meant for the period after their settlement in Canaan, and to prevent the introduction of idolatrous and licentious practices of the Egyptians and other heathen nations. So likewise was the order that the Altar of Burnt Offering should have no steps, "that thy nakedness be not discovered thereon (Ex. xx. 26).
- *c* The utensils for the Altar of Burnt Offering were all of brass; including ashpans, shovels, basins, flathooks, firepans, grate, net-work and rings.

We shall presently have to point out the influence which most, if not all of these several items and details, even though apparently unimportant, had on the sanitation of this Jewish church.

That the structure and adornment of the Hebrew Tabernacle was no tinsel or tawdry or inferior work, but was massive, lasting, and costly, is shewn by the simple fact that though this edifice was comparatively small and insignificant, the value of the gold and silver about has been reckoned at £200,000. The chief part of this was doubtless from the gifts of the Egyptians before and at the Exodus. As already explained, this was voluntarily handed over by the then softened Godly-inclined and devout Hebrews, as a free-will offering of the people (Ex. xxv. 1-8). The Hebrew women were equally zealous and careful in embroidering the curtains of the Outer Court, its entrance, those of the Tabernacle proper, and the vail.

The Tabernacle, as thus designed by Jehovah and carefully constructed under the supervision of Moses and his assistants, was finally completed and set up near the foot of Mount Sinai on the first day of the first month of the second year of the departure of the tribes from Egypt; that is some months after their arrival at Sinai; and after Moses had the Divine orders for its erection.

In its entirety and with its proper staff and ritual, the Tabernacle was spiritually, morally, and socially both the heart and the brains of the Jewish camp; from whence emanated all its best and purest thoughts, deeds, and aspirations. It was this influence mainly that kept the Hebrews spiritually alive, and thus contributed most to their soul's welfare and religious health; even as it also was the lung, main emunctory and sanitary focus of the community; and that division of the Hebrew camp which contributed most, both directly and indirectly, to its physical and physiological health. The mature, infallible, and perfect sanitary ideas of the Divinity and Author of all science, hygienic and otherwise, were thus illustrated and embodied in the construction of the Tabernacle, as it will be subsequently seen they were in its working and its routine. To the uninitiated these details may appear ridiculously minute. Still they are necessary; for each and all have a greater or less influence in the hygiene of the Tabernacle, camp, and Israelites. Sanitary efforts often consist mainly in excessive and continued attention to a series of very minor matters. A private or a public building, like the Tabernacle, may be rendered unhealthy merely by the sum total of several slight hygienic aberrations; even where the major sanitary factors are perfectly normal and satisfactory.

In order to raise an adequate *revenue* for this costly edifice, and maintain the service, all the people from 20 years old and upwards had each to contribute a similar small sum, so that all might feel that every rank and age, old, young, rich, and poor alike, required atonement and ransom for their souls (Ex. xxx. 12). This was called "atonement money" (Ex. xxx. 16), and amounted to half a shekel, *i.e.*, a little more than a shilling. like all else connected with the Hebrew Tabernacle, this wise law also was arranged by Jehovah.

The Tabernacle *staff* was not only select but very large. At an earlier stage of human progress the head of the family was at first considered its High Priest, and by him sacrifices were made. But after the Exodus, and when the Hebrews became an independent nation, Aaron and his sons and their descendants had the priestly duties deputed solely to them (Ex. xxxviii.). At the same time, the Levites (to which family and the Kothathite branch (1 Chron. vi. 1-3) both Moses and Aaron belonged (Ex. ii. 1-10; iv. 14)) were formally set apart as a sacred caste to help them (Numb. iii. 5-13; xvii. 2-8) and to assist in sanctuary work. The whole of the male Levites took office by special consecration to God first when one month old (Numb. iv. 47), and again when 25 years old (Numb. viii. 24); and resigned at 50 (Numb. iv. 3). The first staff of the Tabernacle consisted of the Chief or High Priest Aaron; his four sons, Nadab, Abihu, Eleazer, and Ithamar (Ex. xxviii. 1-2), who were named priests; and from 6,000 to 7,000 Levites. At the first numbering at the beginning of the Wanderings the Levites were 22,273 strong, and at the second numbering, towards its close, 23,000. The tribe of Levi was thus much smaller than any other. But not more than one-third or one-fourth of these amounting to the numbers given above were able-bodied men, fit for tabernacle work. These figures give from 6,000 to 7,000 adult Levites to 601,730 adult males of the twelve tribes. This is at the rate of one adult Levite for every 86 adult male Hebrews, or one working Levite for every 285 Hebrew man, woman, and child. This entire tribe was set apart solely for the peculiar service of God and for the duties connected with the Israelitish worship and ritual, to shew that the Deity deemed and aimed to teach how important religion and His special service is. They had no other work. It was the special duty of the Levites to bear the Ark; to stand before the Lord to minister to Him; and to bless in His name. For all this the High Priest, Priests, and Levites were specially set apart (Deut. x. 9); and had "no part or inheritance with his brethren, the Lord is his inheritance" (Numb. xviii. 20; Deut. x. 9). That is they had no tribal territory. And in thus setting them apart for Tabernacle service Jehovah said "ye shall be holy

men unto Me" (Ex. xxii. 31). For these reasons the Levites were well provided for; as well as being exempt from ordinary work, and directly or indirectly kept apart for sacred and tabernacle service only. As part of this arrangement they were supported by tithes, or the people's contributions; all heave or wave offerings and hallowed things were the Priests (Lev. v. 9). Subsequently special cities were assigned them in different parts of the country to facilitate priestly work (Josh xxi.). The six cities of refuge were all Levitical (Numb. xxxv. 1-8). Their cattle were not to be taken from them or offered in sacrifice, but kept for their own use as God's servants. They were not exempt from paying tithes to the priesthood (Numb. xviii. 21-24). In Mosaic times they were much respected, especially the Kohathite, who had the most important work to do. In King David's time they had materially increased in numbers; and were re-organized by him. Thus 24,000 were set apart to assist the Priests; 4,000 were musicians; 4,000 were gatekeepers; while 6,000 had various other duties (1 Chron. xxiii. 26). As with other Tabernacle matters, very minute details were also given by Jehovah to Moses regarding the selection, appointment, garments, consecration, &c., of the Priests and Levites (Ex. xxviii. 29-39). This was one of the matters given on Mount Sinai to indicate its importance. And they are details that have all a more or less interesting bearing on the sanitation of the Tabernacle, and that in various ways. And mainly in this that such a large body of men, unless carefully massed, handled and drilled, might seriously interfere with the sanitation of the edifice and its congregation, which consisted of the entire Hebrew nation. Whereas, on the other hand, by judicious management, they might materially promote their hygiene, mainly by their skilled labour and their ultra-cleanliness, as will presently appear. Moreover, the Hebrew religion and ritual carried out mainly in this circumscribed Court included not only the massing and manipulating in one small space of a large body of the men, women, and children of the vast congregation, swelled by officiating Priests and Levites; but also involved the offering up of a large number of sacrifices, mainly animals, and chiefly of the quadruped herbivora.

In this connection, a large, lately enslaved nation, set free in a wide desert, and compelled to offer many cattle in sacrifice, an apparently onerous duty, let it be remembered that the Hebrews were mainly a pastoral people, and that for hundreds of years cattle had formed their chief wealth and study. And also that on leaving Egypt they were well provided for their journey, as the Egyptians, glad to get rid of them, permitted them to "borrow," that is to bestow on them as parting gifts, both "jewels of silver and gold and raiment" (Ex. xii. 35), and

also "such things as they required," and that to such an extent that they "spoiled the Egyptians" (Ex. xii. 36). This proves that they did not leave Goshen empty-handed or in abject poverty to starve in the Desert, so very unlike the land they had left for fertility. And, among other things it is recorded that they took with them "very much cattle" (Ex. xii. 38). These they knew well how to handle and how to most rapidly increase. As in former days (Gen. xiii. 2; xxvi. 14; xxx. 43) God doubtless blessed and aided the increase. And in those early times there is reason to believe that the so-called "Desert" was not so bare as it now is, especially in the valleys. They had now abundance of leisure to attend to pastoral pursuits. They remained nearly a year in the Wady-es-Shiehk or Wady Feiran, at the foot of Mount Sinai, where the Sinaitic laws were delivered, the Tabernacle constructed and first erected. As with their ancestors, they doubtless soon got accustomed to a nomadic shepherd life, here and at other "stations" during the 40 years' Wanderings; at some of which they camped long; thus at Kadesh Barnea, where they stayed "many days," and possibly so long as 36 years, and thus had time to develop pasture land. Moreover, the majority of the many different marches of the Wanderings were neither long or arduous enough to damage the cattle. All this development of flocks and herds, with a view to sacrificing, was likewise of Divine appointment. Still it implied conditions that, but for excessive care, might have led to excessive, uncleanliness, and highly unsanitary conditions. How this was met, and judiciously coped with by Divine ordinances, will presently appear.

The sanitary bearings of these details regarding the Tabernacle will become more apparent as we proceed; especially to medically trained minds. While the special and no doubt intentional sanitary meaning and object of others will, by study, become more evident than they appear at first sight. Meanwhile we may point out what indeed will be already obvious; namely, that as with the camp, so there were certain factors in the Hebrew Tabernacle that were more or less sanitary and health-preserving; and, on the other hand, certain factors that were just the reverse, more or less insanitary or health-marring. The sanitary dangers lay, not in the Tabernacle itself, for that was constructed on healthy principles; but rather in the use of the Tabernacle by the worshipping people and the sacrificing Priests, and the resulting littering and uncleanness. To make the former sanitary agencies combat, counteract, and overcome the latter unsanitary factors so as to make the Hebrew Tabernacle, as a whole, add to and not detract in any way or in any measure from the health of the Hebrews and their camp; but, if possible, to add to them, was the sanitary problem that the

Almighty had initiated and to which He had addressed Himself: and that for which He, as in all else, including the Hebrew ceremonial and the physical construction of the Tabernacle, Jehovah gave Moses the, and for many evident reasons the most minute directions and special sanitary laws. Jehovah cannot dwell amid impurity of any kind; whether spiritual, moral, social, or sanitary. He desired to educate His chosen people to be pure and clean in all things, in soul, mind, morals, and body. He aimed at teaching them sanitation, as well as other important matters. And, as He had instituted the Tabernacle, with a special ritual and service; it behoved him also to assign its site, and to legislate for its proper sanitation.

The sequel, after careful study, appears very scientific and skilful to us; although it was doubtless very easy to the Allwise. Unquestionably, by making the Tabernacle small, locating it in the centre, and giving a very complex ritual, the Divinity complicated the sanitation materially. Our next task, therefore, is necessarily to consider briefly and examine the actual and relative importance of the different sanitary factors as tending to aid or detract from the health of the Hebrew community; and then endeavour to estimate on which side, that of evil or of good the sum total and result of these conflicting forces lay. Therefore:—

1st. What were the number and nature of the sanitary agencies connected with the Hebrew Tabernacle; and how did they act.

2nd. What were the number and nature and working of the unsanitary factors; and

3rd. Can we learn aught from a study of the wise sanitary means and agencies that the Supreme and Divine Hygeist resorted to and selected in order to effect His desired object; viz., to make the Tabernacle add to and not lessen the Hebrew sick and death-rate; and thus enable the Hebrews to become that model, healthy, and vigorous nation that Jehovah desired them to be, as an example and a lesson to the world.

The following items may be regarded as the chief sanitary factors of the Tabernacle:—

1. The durability and cleanliness of the Shittim wood; its lightness for transport; and the cleanliness of the easily washed linen curtains of the Court and the Tabernacle, even when embroidered. The cleanly nature of the gold, brass and silver which formed or covered the Tabernacle and its furniture. The absorbability and retentive storage capabilities of the skins, hair, and linen coverings and hangings, and their sanitary aid for the bactericidal uses of the

incense oblation burnt in the Holy Place; were all sanitary, and promotive of health.

2. The absence of a burying-ground and grave-yard round or near the Tabernacle was an indirect but still potent sanitary advantage. It is an axiom in sanitation that even negative hygiene contributes to the general health-giving result. In the Hebrew camp there can be little doubt that the place and mode of burial contributed largely to the salubrity of the general community. It would have been absurd to bury the Hebrew dead for any reason, sentimental or otherwise, round the Tabernacle, as is now often done round modern churches; as the entire structure was necessarily moved as often as the camp itself. It would have been unwise for several reasons (*e.g.*, crowding and its added sanitary dangers; the increased chance of rendering typically clean persons, ceremonially unclean, by accidentally touching dead bodies, bones, graves, &c.), to make the Hebrew cemetery round or near the Tabernacle, and at the same time have sacrifices, burials on an average over 41 a day, as well as worship, all going on in close proximity. Moreover, and chiefly the Divine Sanitarian knew where and in what directions the chief hygienic dangers lay, and that these were mainly in contaminated bacteria-laden soil and air from putrefying dead bodies; and in the danger from infection of the living by those who had succumbed from infectious and contagious diseases, such as leprosy, plague, &c. The Hebrews, as ordered, buried their dead away from the living community and entirely beyond the camp. And thus avoided morbific and offensive effluvia and disease contamination by microbes; the soiling of the camp, earth, air, and water thereby in the very midst of their community and in their very sultry atmosphere. Thus in resorting to the Tabernacle for worship or sacrifice the devout or the penitent Israelites were not constrained to walk through a doleful grave-yard, but through that portion of the camp occupied by the Levites and the Priests, whose tents and their surroundings were supposed to be, and no doubt were, models of cleanliness and order, owing to superior sanctity, knowledge of sanitation and obedience to the Divine sanitary laws. The same sanitary precaution and outlook were taken after the Hebrew settlement in Canaan: where the Jewish burial places were placed on the sides of mountains, in gardens, or fields

(Mat. xxiii. 27-29; John xix. 41). Family sepulchres were in gardens. None were buried in crowded cities or too near dwellings; the air, soil, or water of which might thereby be contaminated by putresence, and disease thus communicated to the people. Even had it been permitted, and there is no evidence that it was, as *burial* alone, that is ordinary earth burial, is spoken of in Scripture, it would have been impossible, with a moveable camp, and scarcity of wood or other combustible material, to carry cremation into effect where so many died.

3. Though small for the use of two millions of souls, all of whom were compelled by Divine law to worship and sacrifice, a rule that none- might evade; and moreover, though it was central, two very obvious sanitary dangers, the Court of the Tabernacle was to a certain extent a counterbalancing influence, as it was open, and thus acted in a manner now fully recognised and appreciated in the hygiene of cities, viz., as a health-giving vent, lung, or uptake, to purify not only its own atmosphere for the ministering Priests and Levites and the worshipping congregation, but also that of the entire camp. By this means the Tabernacle air, heated and contaminated by *a*, the congregation; and *b*, by the sacrificial fires; and *c*, by the camp beyond; was drawn concentrically and carried upward, according to well-known laws of the ascent of heated and influx of colder air to supply its place. Natural ventilation was here favoured and also increased both by the heat of the worshippers and that of the sacrificial fires. The sanitary comfort and benefit of this open court would be especially evident when sacrifice or worship was in progress, and the area was more or less crowded. It is probable that it became the practice, at least among the more devout, to pray morning and evening in the outer court, when the High Priest was offering incense in the Holy Place, the curtain of which was doubtless drawn up to facilitate worship. A covered court under those circumstances would have been far less sanitary than this open one, as it would have impeded or altogether prevented the outlet and uptake of the heated but vitiated emanations from the worshippers and sacrifices. It must be remembered that the necessarily slow combustion of the sacrifices one by one on the altar fire necessitated a much more prolonged occupation of the Tabernacle by the Priests, Levites, and Laity than

our modern Church service of an hour or hour and one half, twice a day. Further evidence of the wisdom of having an open court to permit an immediate and complete uptake of vitiated air, is to be found in the times of sacrifice. To realize this we must remember the many different kinds of sacrifice that Jehovah instituted; the vast number of each of these different kinds that must have been made; and the number of people and Levites so engaged. The number of sacrifices have to be catalogued in order to shew how difficult it must have been for the master of the ceremonies to arrange so as to accommodate them comfortably, a matter imperatively necessary for soul-satisfying worship.

4. The moveable nature of the Tabernacle and its frequent removal on the march, favoured sanitation greatly; by promoting cleanliness and freedom from germ-laden dust; and its settlement on a new and clean basis. To estimate fully the importance of this we must remember the frequent crowding of the building and the many soiling refuse-leaving sacrifices. Each new site was a selected highly sanitary and fresh starting point.
5. The skin and hair triple roofing of the Tabernacle, its wood, linen, and embroidered curtains, and the linen hangings of the Court were highly absorbent, retentive and diffusive, under heat, of the bactericidal and therefore health-preserving odour of the incense and the Holy anointing oil; the latter disseminated twice a day from the Holy Place.
6. The admirable precautions comprised in the Mosaic public hygiene aided materially in preserving the cleanliness and sanitation of the Tabernacle.
7. The antiseptic bearings of the Jewish ceremonial and sacrificial oblations were also admirably adapted to promote health and prevent imminent and great sanitary dangers, as will presently appear.

On the other hand the factors that were more or less unsanitary and morbific, and therefore hygienically dangerous, in the Hebrew Tabernacle were:—

1. The comparative smallness of the Tabernacle and its limited capacity for a community of over two millions of people; with a staff of 6,000 or 7,000 Priests and Levites; and the frequent heavy sacrifices that no doubt made frequent and systematic services in some measure counteract the sanitary evil necessary: but yet, and notwithstanding this, interfered materially

with the purity of the Tabernacle by frequently and seriously re-soiling it. At certain times the Tabernacle and its vicinity must have been very crowded; especially thrice a year, namely, *a*, at the feast of unleavened bread; *b*, at the feast of harvest; *c*, and at the feast of ingathering. For then all the male Hebrews had to appear before the Lord God (Ex. xxiii. 17). This necessarily led to dust, soiling, and impure air, and sanitary danger by emanations from the skin, lungs, clothing, &c. Although the Hebrews were cleanly as a race, cleanliness was made to form one of the main factors of the Mosaic hygienic teachings. As with other nations, even modern hygienically enlightened ones, various grades of cleanliness are recognised and acted up to, and various ideas prevail even among individuals as to what precisely constitutes cleanliness; and likewise various degrees of adherence given to the hygienic laws they were daily taught by their great Lawgiver. Then, likewise, was the danger of infection clearly increased from persons with half-developed infectious diseases. Thus by system and order it came about that the entire congregation on their exit from the sacred precincts were physically and physiologically as pure and clean as when they entered it for devotional or sacrificial purposes. And so for several potent reasons it was well that the court of the Tabernacle was open and not shut in by roofing of any sort.

2. The comparatively large staff connected with and necessary for the ceremonial and services of the Tabernacle; viz., the Priests and Levites, necessarily contaminated both the place and its atmosphere in various ways and to a considerable extent, and superadded impurity to that coming from the congregation.
3. The great number of ordained feasts; the consequent massing of human beings; and the increased number of sacrifices, necessarily added to the difficulty of keeping the Tabernacle clean and its atmosphere pure.
4. The Desert air of that region was warm and balmy; but still it was also apt to be, *a*, highly dust-laden, a factor which is often and sometimes very unsanitary and germ carrying; *b*, of a very putrefaction hastening nature.
5. Unquestionably the greatest of all the hygienic dangers connected with the Hebrew Tabernacle lay in the sacrifices which formed so prominent and indispensable a part of the Hebrew ritual. Numerous offerings,

oblations, ceremonies, and sacrifices formed an essential portion of the Hebrew ritual. These were done away by Christ's death, and are non-essentials in the Christian faith. But they formed part of the Divine spiritual teaching of those early days. To properly understand the full extent and bearing of this pregnant source of danger, and in what particular directions its lay, it will be necessary to study as briefly as is compatible with perspicuity the different kinds of sacrifices, their nature, number, and the variety of animals or special offerings. These were very varied, and accompanied with different ceremonies, according to the reasons for making them; and the wants, feelings, and sins of the people for whom they were offered up. They were all only types; and could not make him or her that did the service perfect as pertaining to the conscience; and were only open and public proofs of sorrow for sin and of repentance and a desire for reform and the human perfection that God desires. The Mosaic law gives no special commands regarding prayer. This was neither expressed nor elaborated, but taken for granted; and doubtless accompanied or followed every public sacrifice.

The following are the different varieties of sacrifice offerings and oblations mentioned in the Pentateuch as comprised in the Hebrew ritual; all being symbolic; and consisting of different kinds of animal, vegetable, and mineral matter; chiefly the two former, and mainly the first. The animals were either quadrupeds or bipeds; often the former; and of large size, *e.g.*, oxen. The vegetable matter was usually grain or fruits. Wine and honey were also offered. When the offering was animal, certain parts had sometimes to be eaten; or claimed by the Priests; while others were burnt; and the refuse, which was often great, and consisted of the entrails, skin, bones, hoofs, blood, offal, and parts not eaten by the Priests or burnt, was thrown away.

As the Hebrew ritual, with its ceremonies and its different sacrifices, oblations, and offerings, was very complex, it is not very easy to systematize them so as to give a clear and fully satisfactory epitome. But the following may be received as a fair summary of the names, nature, and times of these different rites: in every one of which the penalty was proportioned to the different classes of Israelites by gradation as they could afford.

I. Bloody offerings, *i.e.*, of animals killed by effusion of their blood. These were invariably selected from the cere-

monially "clean" list (Lev. xi. 3-47). Of quadrupeds, the ox, sheep, lamb, goat, and kid. Of birds, the turtle dove or young pigeon. When killed, their blood was caught in a vessel and partly sprinkled round and on the altar (Lev. i. 5; xvii. 11). The rest of the blood was poured out at the foot of the altar on which the sacrifice lay. This was previously salted for the fire (Lev. ii. 10). In the Tabernacle days the sacrifices were first offered at the door. After the erection of solomon's Temple it was not lawful to do so elsewhere. The different varieties of Bloody sacrifices were:—

A. Occasional, private, or individual sacrifices. These were again sub-divided into:—

1. Burnt (self-dedicatory and expiatory or free-will) offerings, wholly devoted to God (Lev. i. 3); and consisting of sheep, goats, bullocks, three years old, goats, lambs, one year old, turtle-doves or pigeons; which were wholly consumed with a libation of wine poured on the altar. These were offered either by
   - *a* An individual, as for example a healed leper, after child-birth, &c.

   or by the whole people, as—
   - *a* The daily morning and evening animal sacrifice (Ex. xxix. 38-42). This had to be offered continually.
   - *b* The double Sabbatic sacrifice, likewise continual (Numb. xxviii. 9-10).
   - *c* The burnt offerings of the great festivals (Numb. xxviii. 11; xxix. 39).
2. Peace, thanksgiving or gratitude or vow offerings (free-will and Eucharistic) (Lev. xxii. 29; Lev. iii. 1); consisting of animals of the herd and flock (Lev. iii. 7; xi. 21); *e.g.*, the ox, bullock, heifer, lambs, goats, sheep, and rams (Lev. iii. 1; Lev. iv. 1-6); which were partly burnt on the altar and offered with cakes. The remainder formed an entertainment for widows, orphans, and the poor, slaves and Levites, in the camp but outside the Tabernacle.
3. Sin-offerings for sin expiation consisted of animals killed and partly eaten by the Priests; the blood being sprinkled. These animals were bullocks, lambs, kids of goats, young calves, he-goats, turtle doves. Sin-offerings were of two kinds—
   - *a* Indivdual or personal. Sins of presumption deliberately and wilfully committed. For the capital violations of murder, idolatry, and adultery there was no expiation or atonement (Lev. vi. 1-7). For other par-

ticular sins or legal imperfections sin offerings were expiatory. These included sins of ignorance (Lev. iv.), which comprised—

1. Sins of surprise.
2. „ „ thoughtlessness.
3. „ „ urgent or plausible temptation.
4. „ „ absolute ignorance.
5. „ „ vows unwittingly made or broken.
6. „ „ uncleanness unwittingly contracted (Lev. v.).

All of these were no doubt very numerous from the lack of instruction and scarcity of books. In each and all the penalty was according to the advantages of the offender.

b Communal, national, or public sins. These were:—

1. A kid each new moon (Numb. xxviii. 15).
2. Sin offering at the Passover.
   „ „ „ Pentecost.
   „ „ „ Feast of Trumpets.
   „ „ „ „ Tabernacles (Numb. xxviii. 22-30; „ xxix. 5, 16, 19; „ xxii. 25-28; „ xxxi. 34-38).
3. *a* Offering for the people of two goats: of which one was sacrificed, the other being the "scape" goat.
   b Offering of the bullock for the Priest on the great day of atonement (Lev. xvi.).
4. Trespass or debt offering (expiatory), very like 3, and usually a lamb or he-lamb (Lev. v. 14-15).

B. National or extraordinary sacrifices, regular and public, consisting of:—

1. The daily perpetual burnt-offering (Numb. xxviii. 8) of two lambs morning and evening, with a bread and wine offering (Ex. xxix. 38-42).
2. The weekly sacrifice on the Sabbath, and in addition to the daily sacrifice (Numb. xxviii. 9-10; Ex. xx. 9).
3. The monthly sacrifice, which consisted of two young bullocks, one ram, seven one-year-old lambs, a kid for a sin-offering, bread, and a drink offering (Numb. xxviii. 11-15).

4. Yearly sacrifices on the great annual festivals; *e.g.*,
   - *a* The Paschal Lamb at the Passover (Lev. xxiii. 37; Numb. xxviii. 7; Numb. xxix. 2-22; Ex. xii. 3-27; Ex. xii. 22).
   - *b* Day of harvest or ingathering, or first fruits or vegetables (Ex. xxiii. 16).
   - *c* New moon or 1st day of 7th month; the beginning of the civil year.
   - *d* Day of Expiation or Atonement (Lev. xvi. 11).
   - *e* The Sabbatic Year (Lev. xxv. 1-7).
   - *f* The Year of Jubilee (Lev. xxv.).
   - *g* The Feast of Weeks or Pentecost (Lev. xxv. 15).
   - *h* The Feast of Tabernacles (Lev. xxiii. 33).
   - *i* The Feast of Trumpets (Lev. xxiii. 23).
5. Special sacrifices for diverse occasions.
   - *a* At the Consecration of the High Priest or Priests (Lev. viii. 9).
   - *b* „ „ purification of women after childbirth (Lev. xii. 1).
   - *c* „ „ cleansing of lepers.
   - *d* „ „ „ issues.
   - *e* „ Nazarites after taking vows.
   - *f* After days of separation.

II. Unbloody sacrifices, meal or meat offerings (Eucharistic) (Lev. ii. 1-6; xiv. 23). These came solely from the vegetable kingdom, and usually of corn, or unleavened flour; or a compound of oil with frankincense and salt (Lev. ii. 1), of which a handful was burnt by the Priest on the altar. Leaven or honey were forbidden and the added salt must be pure, all notable sanitary indications. These were always added with the burnt offering, the peace, sin, and trespass offerings: and were appendages to sacrifices, like the drink-offering. Thin cakes or wafers were sometimes offered alone. The chief meat offerings of the Hebrew ritual were:—

1. The daily with the daily burnt offerings of flour, oil, and wine (Ex. xxix. 40-41).
2. Shew-bread. Twelve loaves with frankincense, renewed every Sabbath (Lev. xxiv. 5-9).
3. Special meat offerings at Sabbath and the great festivals (Numb. xxviii. 29).
4. First fruits
   - *a* At Passover (Lev. xxiii. 10-14) Both wave
   - *b* At Pentecost (Lev. xxiii. 17-20) offerings.
   - *c* Of dough both heave

d Of the threshing floor at harvest offerings. (Numb. xv. 20-21; Deut. xxvi. 1-11).

III. Drink offerings. These were to accompany both bloody and unbloody sacrifices, and were never used separately. They consisted of wine, which was partly poured on the victim's brow, and partly drunk by the Priests. The quantity of wine offered varied thus: with a bullock $\frac{1}{2}$ a hin; with a ram $\frac{1}{3}$ of a hin; with a lamb or kid of the goats $\frac{1}{4}$ of a hin; with a sheaf of first fruits $\frac{1}{4}$ of a hin.

IV. Ordinary, common, voluntary, or prescribed oblations. These were:—

a Ordinary oblations.

1. Of shew-bread.
2. Of incense of several fragrant spices (Ex. xxx. 34-36). This was offered, as already mentioned, twice daily, viz., morning and evening, by the officiating Priest, on the Golden Altar of Incense, used for this alone; and on which no bloody sacrifice could come. Again, on the day of atonement incense was offered by the High Priest in a censer within the vail, *i.e.*, in the Holy of Holies. During this offering the people prayed silently without (Luke i. 10); a solemn silence alluded to in Rev. viii. 1.

b Voluntary or free oblations or free-will offerings (Lev. xxiii. 38); fruits of promises or vows.

c Prescribed oblations; first fruits or tithes, consisting of fruit and animals, sheep's wool, corn, wine, and oil.

d Consecration offering; chiefly corn and oil: as of the High Priests, Priests, and that of the Tabernacle.

Two other varieties of sacrifice are mentioned in the Mosaic Ritual, viz., the "heave" and the "wave" offering. The heave offering was where the sacrifice was lifted, as prescribed towards Heaven. The wave offering, where it was waved to and fro. Thus heave the ram of consecration (Ex. xxix. 27): heave offering (Numb. xv. 20; xviii. 30-32); heave shoulder (Ex. xxix. 27; Lev. vii. 34; Numb. vi. 20; x. 14-15). So also we read of the wave offering (Ex. xxix. 24; Lev. viii. 27; xxiii. 20; Numb. vi. 20); the wave lamb (Lev. xiv. 21); the wave breast (Ex. xxix. 26); the wave shoulder (Lev. vii. 30; viii. 9; ix. 21; x. 15); also of the wave sheaf (Lev. xxiii. 11-12); the wave jealousy offering (Numb. v. 25). These, moreover were the Priests' perquisites. "The heave shoulder shall ye eat" (Lev. x. 14). "The right shoulder give to the Priest" (Lev. vii. 32). "The right shoulder waved is thine" (Lev. ix. 21; Numb. xviii. 18).

Now it must be plainly evident, even if we were to proceed no further in our investigation, that this Hebrew ritual was very different from our modern religious services: and that no matter which of all these different kinds of sacrifice, any individual or family came to offer at the Tabernacle, where alone they were permitted to sacrifice, their worship and ritual was one in which the main element was an oblation symbolic either of adoration, gratitude or penitence. And it will also be clear, that whether the sacrifice was one which involved the slaughter of animals and their cremation on the Altar of Burnt Offering; or even the simple cremation of vegetable matter as sacrifice; the process was one that implied and involved a daily or frequently repeated manufacture and collection of refuse; which, if not constantly or at least frequently removed, would not only have unduly littered and filled the court of the Tabernacle, but would soon, especially in that sultry climate, have rendered it both unsightly, unwholesome, putrid, and unsanitary. Had this been allowed to accumulate, even for a few days or weeks, the Tabernacle and surrounding camp would have been uninhabitable, and an embryo pest-house; the congregation thereby soon decimated by disease, and the Hebrew race possibly ere long exterminated by epidemics. But for this, Jehovah, the all-seeing, had wisely legislated. He who made the law of sacrifice minimised the resulting danger. But for the precautions which the Deity organized this sacred edifice and ritual, meant to promote the health and hygiene of the Hebrew souls, hearts, and homes, might and would have become a constant source of the direst danger to the health and hygiene of their bodies.

A close critical survey of the sacrificial code which formed so constant and important a part of the Hebrew religious ritual, will disclose, even to non-medical minds, what a formidable hygienic danger this involved. And also how much the healthiness not only of the Tabernacle, the High Priest, Priests, and Levites, but also that of the general camp and the entire Hebrew community, men, women, and children, old and young alike, might have been influenced for evil by the injudicious, or guided for good by the proper sanitary fulfilment of laws meant to prevent disaster of this kind. The sanitary dangers now alluded to lay in several very different directions.

a In the more or less frequent crowding, and doubtless occasional overcrowding of human beings for worship and sacrifice, especially at the great festivals.

b In the limited size of the space allotted for this, in or near the door of the Court, or in the Court itself; where alone sacrifices were permitted (Ex. xxvii. 1).

c In this allotted sacrificial spot being located in the centre of the camp and the community; and thus furthest

from the ground allotted for deposition of debris outside the camp. These were clearly incentives to laziness and the resulting imperfect cleanliness.

d In the great number and many different kinds of sacrifices that were offered daily and weekly and annually. And the consequent danger of the accumulation of noxious, odoriferous, unsightly and unsanitary refuse of a highly putrefactive and disease-promoting nature, namely blood, flesh, skin, entrails, &c., fully exposed to the air in a very warm and therefore highly septic atmosphere.

e In the danger resulting from a long stay in one spot or camping ground, with the chance of super-saturation and pollution of the soil of the Court with half-putrid, solid, semi-solid, and liquid matter, rendering it dangerously morbific.

If the Tabernacle had been used for worship only, it might have been easily kept thoroughly clean by its ample staff, notwithstanding the great numbers who resorted thither, voluntarily or compulsorily. But a prominent and indispensable part of the Hebrew ritual consisted of sacrifices that involved the slaughter of many animals, and the destruction of a large part of their carcases by fire. This necessarily involved frequent and great littering, and contamination of the small court of the Tabernacle by blood flesh, hides, hoofs, horns, and other refuse. So that, if not carefully legislated for hygienically, the Tabernacle and its environs would soon have become and remained like a disorderly, ill-kept, filthy shambles. This will be better realized when the large number of sacrifices, and the nature of these, especially as to size, are considered. Again, as the refuse of these sacrifices, which must often have been large, had to be carried some distance beyond the camp; and as this duty must of necessity have been relegated from the Priests to the less educated and less interested and duty-bound Levites, it was apt to be less perfectly performed, or indeed often neglected.

The Hebrews of the Wilderness had occasion to slaughter animals for two purposes, namely for food and for sacrifice. Of these the latter was by far the most important and frequent. Little animal food usually was and is eaten in sub-tropical Eastern countries generally. And doubtless it was the same with the early Hebrews, both in Goshen and in the Arabian deserts. Here its use was probably mainly confined to festival and feast days. The usual food of the Israelites consisted largely of vegetable products. But when they did kill for food and home use this might be done "in all their gates," that is all over or beyond the camp, except of course in the sacred place, the Court of the Tabernacle (Deut. xii. 13).

But they were not permitted to sacrifice and offer their offerings in any and every place; but only where the Lord chose and appointed (Deut. xii. 14); and that doubtless for the purpose of altogether preventing the unauthorized religious ceremonies in which the unruly Israelites might have indulged, a sin from which even their Priests, like Nadab and Abihu, were not altogether free (Numb. iii. 4). "Take heed to thyself that thou offer not thy burnt-offerings in every place that thou seest, but in the place which the Lord shall choose"; and this no matter whether the sacrifice was a burnt or a produce offering (Lev. iv. 34). This appointed place was "at the door of the Tabernacle of the Lord" (Lev. i. 3; iii. 2); or "before the Tabernacle of the Congregation" (Lev. iii. 8; xii. 13); that is within a reasonable working distance of the Altar of Burnt Offering. Sometimes the sacrifice had to be killed at a specified side of the Altar of Burnt Offering (Lev. i. 11). Most probably the animals selected for sacrifice were driven and kept in readiness between the door of the Tabernacle and the tents of Moses and Aaron; and from thence taken one by one as the Priests and Levites required. The remaining ashes were evidently laid on the east side of the Altar of Burnt Incense (Lev. i. 16). All this indicates the reign of law, system, and order, so essential to hygienic perfection. The sin and penalty of wilfully choosing another place for sacrifice is shewn by another significant reference to the killing of sacrificial animals elsewhere than in the Heaven-appointed locality. "This is the thing which the Lord hath commanded, saying, what man soever there be of the House of Israel that killeth an ox, or lamb, or goat in the camp, or that killeth it out of the camp, and bringeth it not unto the Lord before the Tabernacle of the Lord; blood shall be imputed into that man; he hath shed blood; and that man shall be cut off from among his people" (Lev. xvii. 3-4). This clearly alludes to sacrificial and not to food animals. For had it been the latter, the mandate would have been equivalent to practically converting the Tabernacle into the public slaughter-house, and thereby vastly increasing the hygienic danger, and making the difficulty of maintaining both the sanitarily-necessary and the ceremonially-obligatory cleanliness indispensable for a safe sanitary outlook, all the more difficult and virtually impossible.

The unavoidable physical pollution of the Tabernacle, especially its court, by the numerous and large sacrifices and offerings that formed an indispensable part of the Hebrew ritual and an unfailing accompaniment of their worship, festivals, punishments, and even of their ceremonies, commemorative of escape from danger and recovery from disease: and indeed the entire Hebrew ritual, so essentially and fundamentally educa-

tional, elevating, civilizing, and intended for their spiritual, moral, social, secular, physiological, and physical benefit; would thus clearly have formed a source of very constant and great hygienic danger to the Hebrew camp, and not to the Priests and Levites alone; had it not been fully met and overcome by the hygienic rules formulated and codified by the Supreme Hygeist. It is therefore evidently well worth enquiring into the reality and extent of this potent sanitary danger; and also to study how this for that day abstruse sanitary problem was solved by the wisest and most profound of all hygienic experts, not Moses, but Jehovah. In order to do this satisfactorily it will be necessary to strive to form some estimate of the immense number of animal and vegetable sacrifices that the Israelites must have offered up daily, weekly, monthly, and yearly. Also the conditions under which they were made: and the resulting sources of possible and actual sanitary danger to the Hebrews.

A close survey of the Mosaic ritual shews that certain of the sacrifices connected therewith permit the student to reckon with almost perfect accuracy how many animals and how many different kinds of these were slaughtered daily, weekly, monthly, or yearly; thereby permitting us to ascertain pretty definitely the real extent of the sanitary danger. But on the other hand there were other sacrifices that do not so readily permit this, and thus leave their special sanitary danger in doubt: because though the number and kind of animals is distinctly specified for each occasion, the number of times this was carried into effect is neither recorded nor can be found out or even guessed at.

Confining our attention meanwhile to the first of these two groups, namely, the constant and ascertainable; the following are the occasions that permit the number and kind of animals so utilized to be accurately determined.

a Passover.
b Feast of First Fruits.
c „ Weeks, Harvest or Pentecost.
d „ Trumpets.
e „ Tabernacles.
f Daily burnt offering.
g First of month offering.
h Child-birth.
k Consecration of Priests.
l Dedication of Tabernacle.

In accordance with this Table 16 has been constructed from the pages of the Pentateuch to indicate on each of these occasions the nature and number of the different animals slaughtered on these the most noted of the Hebrew festivals and other important functions.

TABLE XVI Calculable Sacrifices (*) of the Mosaic Ritual.

B O—Burnt Offering. S O—Sin Offering.

Kind	Text	When	Totals for a Year					
			Rams	Lambs	Goats	Kid	Oxen or Bullock.	Turtle Dove or Young Pigeon.
Daily Burnt Offering	Ex. xxix. 38	Daily		834 B O	2 each	day morning and evening (Ex. xxix. 38)		
	Num. xxviii. 3				2 each	Sunday in addition (Numb. xxviii. 9)		
Begin of Month B O	Num. xxviii. 11	1st each month	12 B O	84 B O		12 S O	24 B O	
Passover	Num. xxviii. 16 Lev. xxiii. 5	14th day of 1st month and for 7 days	7 B O	7 B O	7 S O		14 B O	
Feast of Unleavened Bread to commemorate day of leaving Egypt (Abib)	Num. xxviii. 17	15th day of 1st month and for 7 days	7 B O	49 B O	7 S O		14 B O	
Feast of Trumpets	Lev. xxiii. 24	1st day of 7th month	1 B O	7 B O	1 S O		1 B O	
Feast of Atonement Holy Convocation†	Num. xxix. 7 Ex. 12 Lev. xvi.	10th day of 7th month	1 B O	7 B O		1 S O	1 B O	
Feast of Tabernacles	Lev. xxiii. 34	15th day of 7th month and for 7 days after	15 B O	105 B O		8 S O	71 B O	
,, or Booths	Ex xxiii. 16							
,, or Ingathering	Deut. xvi. 13							
,, or Unleavened Bread	Num. xxix. 12							
Feast of first fruits or ,, Pentecost		End of 50th day after offering of first fruits	2 B O	7 B O 2 B O		1 S O	1 B O	
Childbirth ††	Num. xxvi. 65			575 B O				575 S O
			45 B O	1677 B O	15 S O	22 S O	126 B O	
					1885			

† In the Feast of Atonement the number of animals and nature of the sacrifice differ in Lev. xvi. and Numb. xxix. 7.

†† This calculation is for the birth of 23,000 males over 20 to supply the loss of those who died in the wilderness. This would give 23,000 births in 40 years, *i.e.* 575 per year, *i.e.* 18 per month, or 11 per week, or nearly 1·6 per day. Moreover, the table has been calculated as if all provided the wealthier offering and none the poorer of two turtle doves or young pigeons instead of the lamb.

* From this table the first fruits, wheat, fine flour, oil, wine, are omitted to lessen complication. But all this would obviously add to the sanitary danger of littering and uncleanness, whether burnt or not.

This table clearly shews that, even if we estimate only the ascertainable sacrifices, and omit all the doubtful and incomputable ones, and several very occasional ones to be presently spoken of, how very large was the slaughter of bulky quadrupeds in or near the door of the Court, the Divinely-appointed and sole place for that purpose. In this circumscribed spot no fewer than 1,885 large four-footed herbivora were sacrified per year; equal to 4·83 per day; or about 2 bullocks and 31 lambs per week; in addition to 1·6 pigeons or doves each day, *i.e.*, 575 per year.

Now this slaughter alone, constantly and inevitably recurring day by day, was clearly very large, from a sanitary standpoint, for the confined space; no matter whether this went on in the Court itself, or partly in this and partly between this and the tents of Moses and Aaron. And it was therefore clearly necessary to meet the very evident and great sanitary danger and hygienic requirements necessary to minimize or oppose this; by preventing the prolonged accumulation of burnt or raw animal debris, including blood, flesh, skins, bones, hoofs, heads, horns, entrails, and so forth; each and all so prone to speedy putrefaction and the resulting danger both to human health and life. To this was superadded the possibility of rendering the sacred place and its environs so unsightly and obnoxiously odoriferous as to be as dangerous and unbearable to sight and smell as to health and life. And worse still, the likelihood of perverting the purity that Jehovah required and inculcated in all holy places and sacred functions, and, above all, in His special dwelling place, and personally superintended and devised ritual and worship. The Hebrew Tabernacle thus required the forethought, promptitude, skill, and determination of a highly, intelligent sanitarian to fully meet this emergency. This was the problem that Jehovah, the All-wise Himself, undertook, accomplished, recorded, carried into practical effect, and handed down to posterity by bequeathing His simple yet ample and thorough methods to mankind. In making the special and peculiar Hebrew ritual, Jehovah had initiated a pregnant and great sanitary danger. This He Himself intentionally and educationally shewed how to fully and successfully meet. Moses, though medically instructed, could never of Himself have proved equal to the occasion. Doubtless he would have been even less fit for sanitary effort than he was for the satisfactory physical and military arrangement of the Hebrew camp, in which he failed by following human models and methods, so that Jehovah had to re-model to make it perfect. Nor would any physician of that day, illiterate in sanitation, have succeeded better. Jehovah Himself therefore beneficently came to our human help and superadded this revelation of the

Tabernacle hygiene to that of the camp and other departments of Hebrew life, to complete the incomparable sanitary code that forms an integral and important part of the invaluable time lasting and race-embracing Sinaitic code. A scrutiny like this of the hygiene of the Hebrew Tabernacle and of the daily and yearly routine of the Hebrew sacrificial ritual shews how great was the necessity for hygienic legislation; how thoughtful and paternal was the beneficence of the Deity in coming to the rescue and supplying the deficiency; and how Divinely ample were the wisdom and forethought of all that was done by Moses at God's command and under His personal supervision in this sanitary direction. The Deity was about to point out clearly and to practically exemplify the double sanitary lesson; to inculcate the potency of the two greatest factors in practical hygiene; and to teach mankind by the hygiene of the Tabernacle, the vital sanitary safety that lies in excessive cleanliness, and the vast sanitary danger to human health, strength and life that lurks in the lack of this; but more especially in the close proximity to decomposing and putrefying animal and vegetable matter: a lesson for camps and communities even yet unlearnt and unknown in many so-called civilized, especially in Bible-ignoring cities.

It will be noticed that certain omissions have been made in the table, which materially lessen the number of sacrifices, the resulting debris, and the sanitary danger. These are, 1st, of the offerings of vegetable matter, as this does not greatly add to the result; 2nd, of the offerings at the consecration of Priests, as this would only occasionally occur; and 3rd, the offerings during the twelve days' dedication of the Tabernacle. This only happened once, and did not recur weekly, daily, or yearly like the others. Still it is well to note how serious would be the sanitary danger. For during the twelve days over which this function lasted they sacrificed at or near the Altar of Burnt Offering no fewer than 36 oxen and bullocks, 12 kids, 60 goats, 72 lambs, and 72 rams. This made a total of 252 large four-footed animals; of which no fewer than one-seventh were very bulky. These figures amount to 3 oxen, 1 kid, 5 goats, 6 lambs, and 6 rams per day; that is 21 four-footed animals per day. For the proper clearance of the debris on this and the other special occasions, however, as it occured only once in a generation, special hygienic precautions and efforts were doubtless ordered and enforced; so as to thus keep or restore the perfect cleanliness demanded by Jehovah in all matters connected with the service of the Tabernacle.

But, as already stated, the previous table and accompanying items do not set forth the full sanitary danger or the sum total of the debris from sacrifices connected with the Hebrew law.

Inasmuch as to this there should be added the total number of animals slain in connection with the non-ascertainable sacrifices, whose numbers it would be impossible even to guess. Because although the law lays down clearly the number for each occasion, we have no means of ascertaining how many such occasions arose. And, therefore, the sum total of sacrifices of this class must ever remain vague and indefinite, though possibly it may often if not always have far exceeded the other or ascertainable class, and therefore the sanitary danger. These sacrifices would clearly depend on the number of offences committed either ignorantly or deliberately by breaking the Decalogue or one or other of the different Mosaic law codes: offences that necessitated and compelled penalties which necessarily varied materially in frequency with the varying spiritual, moral, and social standard of the Hebrew community. But who can doubt that these were many and often among such an unruly multitude as that which Moses had to lead and govern? Although Jehovah and His human agents tried hard to instil good desires and aspirations into the hearts and lives of the Israelites, and to educate and enable them to live Godly and wise lives, they often fell very far short of His ideal, and were continually rebelling, sinning, and breaking every one of the Ten Commandments and those other laws, sanitary, civil, political, criminal, poor law, and so forth. For this they had to pay the inexorable penalty. No inconsiderable part of this consisted in atonement for the offence by oblation and sacrifice. Of the number and nature of these offences and reprisals, however, so far as we know, they kept no record. If they did it has been lost. And thus it is now utterly impossible to reckon or even roughly guess the whole number of animals slain for penitential sacrifice, to add to the former list of dangerous and insanitary items to be guarded against. But no doubt the list was very large; especially during some years and after certain occasions of rebellion, murmuring, popular sinning, &c.; and possibly often threw the list of regular and ascertainable sacrifices completely into the shade when these factors caused the largest increase of sacrifice and thereby added correspondingly to the physical soiling of the Tabernacle and the resulting sanitary danger on the score of uncleanliness.

The uncalculable and unascertainable sacrifices included all under the head of—

a Burnt offerings (voluntary) for general sins, or as proofs of entire devotion to God among the people individually.

b Sin offerings (compulsory) for sins of ignorance on the part of the Priests, rulers, and people.

c Trespass offerings (compulsory) for deliberate sins or sins of ignorance.

d Meat offerings (voluntary) as atonements.
e Various offerings, for example, Nazarites' vows; and also undesigned transgressions of the ceremonial law by individuals or the congregation.
f Offerings after recovery from disease, *e.g.*, leprosy, and from other morbific or semi-morbific conditions, such as issues, &c.

The law specifies how many animals each of these occasions necessitates; but it would be obviously impossible to estimate the number of times that would call these sin, trespass, meat, burnt, thanksgiving, &c., sacrifices forth. And thus the sum total of animals which this implied. Moreover, the number of male and female "issues," &c., can never be reckoned, but they were doubtless very large in a camp of over two millions of souls, including six hundred thousand adult men and a correspondingly large number of adult women. These would likewise swell the number of animal sacrifices considerably; although possibly some of them, especially for disease, would necessarily dwindle to a certain extent as cures, *e.g.*, of issues, &c., were effected; or as others, such as leprosy, were stamped out, by the people being better cared for sanitarily, subsequent to the delivery of the hygienic law of Moses than they no doubt were by insufficient knowledge during their degradation and slavery in Egypt; and as they were isolated in the Desert; thereby kept apart from less healthy peoples and thus freed from their vices and other deteriorating influences and diseases.

In order to make these two points more clear, namely, that it would be utterly impossible even to guess the total number of animals slain sacrificially to meet the main requirements of the Mosaic law; but that these must have been very numerous; correspondingly dangerous to the cleanliness and the sanitation of the Tabernacle, the following tables are given of the different sacrifices seriatim.

TABLE XVII

Burnt Offerings (Voluntary)

B O—Burnt Offering. D O—Drink Offering. S O—Sin Offering. M O—Meat Offering.

Ref.	Texts	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a *	Ex. xxix. 38 Num. xxviii. 3, 5-9 ,, xxviii.	To shew allegiance	Public	Daily		2	One On	morning and evening additional Sabbath two additional					Sab	$\frac{1}{10}$ $\frac{1}{8}$ $\frac{2}{10}$	$\frac{1}{4}$	$\frac{1}{4}$ D O	
b *	Num. xxviii. 11	,,	,,	Beginning of month	1 B O	7 B O		1 S O	2				M O	$\frac{3}{10}$ $\frac{2}{10}$ $\frac{1}{10}$		$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$	Bull Ram Lamb
c	Lev. i.	Atonement for general sinfulness or special and entire devotion to God	Private according to means	When inclined					1								
d	,,	,,	,,	,,	1	or	1										
e	,,	,,	,,	,,								1 or 1					

* These are quoted in Table XVI.

It will be observed from this table, as indeed it may in them all from Table 16 to Table 24, that a burnt, or a sin, trespass, peace, meat, disease, or any other variety of offering implies and includes several others. In this instance a burnt offering may include a drink, sin, or meat offering, as a necessary and integral part of the oblation.

As it seemed well to give the complete series of burnt offerings instead of curtailing the table, it is necessary to point out that two of the items, viz., *a* and *b*, have already appeared in Table 16, because they are ascertainable and definite quantities. These burnt-offerings as a class were voluntary sacrifices offered as an indication of allegiance; or of entire devotion to God; or as atonements for general or individual sinfulness. These embraced a considerable slaughter of four-footed animals, and thus left considerable refuse, apt to become unsanitary. Thus the daily, the Sabbath, and the monthly burnt offerings for the community at large included the slaughter of 966 large herbivora per year, including bullocks, rams, lambs, and kids (Table 16). The private burnt offerings were no doubt pretty numerous also; but the exact number, and hence the slaughter, is clearly unascertainable. But all of both classes were invariably wholly burnt on the Altar of Burnt Offering, whose wood fire was kept ever burning; the animal and wood ashes being carried out of the camp to a clean place by the Priests or their assistant Levites. The skins belonged to the officiating Priest (Lev. vii. 8). This heavy and daily sacrificing of burnt offerings alone implies a corresponding likelihood of unsightly and dangerous littering of the Court of the Tabernacle and its vicinity; unless steps were taken to avert it.

TABLE XVIII

Sin Offering (compulsory)

F—Female. M—Male.

Ref.	Text	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a	Lev. iv. ,, vii.	A sin of ignorance	Priest						1								
b	,,	,,	Congregation						1								
c	,,	,,	Ruler					1 M									
d	,,	,,	Common individ.			1 F	or	1 F									

The sin offerings in Table 3 were compulsory for sins of ignorance on the part either of the Priests, the rulers, the congregation generally, or the common people individually. Here again it is utterly impossible even to guess the number of sin-offerings made yearly, thereby to ascertain the resulting animal slaughter and the resulting sanitary danger from uncleanness, soiling, and littering. However, they must have been very frequent, as the sins of ignorance among this unruly and largely untaught multitude, especially in the early days of their schooling, must have been many and great. And as they involved the sacrifice of quadrupeds the debris must have added considerably and often largely to the sacrificial refuse and complicated the hygienic outlook. The sin offerings were somewhat differently disposed of from the burnt offerings. The sin offerings were the Priests (Lev. xiv. 13), and had to be eaten by the Priest who offered it for sin *in the Holy Place.* By "eaten" is evidently meant "partaken of." For non-compliance with this law Eleazer and Ithamar were punished (Lev. x. 17). When offered the animals' blood was poured at the bottom of the Altar of Burnt Offering. All the fat, the fat of the inwards, the kidneys and their fat, the caul above the liver, was burnt on the altar. When the sin offerings were offered for a Priest, the refuse, namely the skin, flesh, head, legs, inwards, and dung had to be burnt with wood out of the camp: and not merely dumped there. This necessarily helped to diminish the sanitary danger. In these tables these minutiæ are minutely mentioned to enable the nature and extent of the sanitary dangers to be fully realized.

TABLE XIX

Trespass Offerings (compulsory)

F—Female. S O—Sin Offering. B O—Burnt Offering.

Ref.	Text	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a	Lev. v.	Deliberate Sins, viz.— 1. Refusing to witness	People	As required		1 F		1 F	S O		or	if 2 or 1 for S O 1 for B O	poor 2	poor $\frac{1}{10}$	est of which handful		only a burnt
		2. Touching unclean things, beast carcases, creeping things				1 F		1 F	S O				,,	,,			
		3. Inconsiderate swearing or oath-taking				1 F		1 F	S O				,,	,,			
		4. Fornication			1												
		5. Misappropriation			1												
b	Ditto	Sins of Ignorance— 6. Sin in Holy things of the Lord, even if not wist			1												
		7. Breaking commandments, even if not wist			1												
		8. Lying regarding restitution			1	and $\frac{1}{5}$	more										
		9. Ditto dealing			1												
		10. Ditto violent abstract			1												
		11. Deceiving neighbour			1												
		12. Non-restoration and false swearing about lost things			1												

The trespass offerings (Table 19) were made to atone for sins of ignorance, mistake, or carelessness. They also were the Priests' perquisites (Lev. xiv. 13); and, like the sin offering, had to be eaten (partaken of?) by the Priest that maketh atonement, in the Holy Place. Of these offerings all the fat, inward fat, rump, two kidneys and their fat, and the caul were burnt on the altar. The remainder and the refuse was doubtless at once carried and deposited by the Priests or their assistant Levites at the specified place beyond the camp. These sacrifices clearly added their quota to the uncleanness and resulting sanitary danger, as they involved the slaughter and cremation of animals; and no doubt occurred very often, especially from sins of ignorance. But it is clearly impossible with trespass offerings to find out or even guess how often they occurred, to enable us to ascertain the precise yearly slaughter as a gauge of the sanitary outlook on this score and the hygienic peril it involved.

TABLE XX

Peace Offerings (voluntary)

M—Male. F—Female.

Ref.	Text	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a	Lev. iii.	Atonement	Persons	At will		1 or 1 M or F		or	1 or 1 M or F								

The right shoulder (heave-shoulder offering) was given to the Priests. The remainder of the flesh was eaten by the people who offered, on the same day (Lev. vii. 15). If the offering was the result of a vow or if it was a voluntary offering, it was also eaten on the second day, provided those who offered were ceremonially clean. If any remained on the third day it was burnt and forbidden as food. As much of these sacrifices was consumed, there was necessarily considerably less debris and sanitary danger than if the whole had been cremated. The uneatable refuse, blood, bones, horns, hoofs, entrails, &c., had of course to be disposed of judiciously by speedy and complete removal. As much of these sacrifices was eaten, this of all the sacrificial code had doubtless the least insanitary tendencies.

TABLE XXI

Various Offerings

M—Male. F—Female. BO—Burnt Offering. PO—Peace Offering. SO—Sin Offering. WO—Wine Offering.

Ref.	Texts	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a	Num. v.	Jealousy Husband and wife	Individually	When necessary										$\frac{1}{10}$ WO burnt on altar			
b	Num. vi.	Nazarite Ceremonial uncleanness Dead body	Ditto	Ditto		1 year old						2 or 2					
c	Ditto	Ditto After separation	Ditto	Ditto	1 PO	1 BO 1 SO	M F						Basket	1 & wafers	1	with cakes	
d	Num. xv.	Undesigned transgression of Ceremonial law from ignorance	Congregation	Ditto				1 SO	1 BO				with a	meat and	drink	offering	
e	Ditto	Ditto	Individually	Ditto			1 F										

These various special offerings (Table 21), as for jealousy of husband regarding wife, Nazarites' vows, undesigned transgressions of the ceremonial law, either by an individual or by the congregation at large; were no doubt pretty frequent, especially No. *e*. They involved the slaughter of four-footed animals: and therefore implied considerable sacrificial debris, and the resulting sanitary danger which had to be met and opposed.

TABLE XXII

Meat or Meal Offerings (Voluntary)

Ref.	Text	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a	Lev. ii.	Expression of gratitude for ordinary providential blessings	Public											1 with seasoned	1 with salt	and	1
												or oven	baked cakes	unleavened flour with seasoned	1 with salt		
												or unleavened	baked	wafers pan with seasoned	1 with salt		
												or frying pan	flour	baked with seasoned	1 with salt		
												or ears of corn		with	1	and	1

This offering (Table 22), not animal, but wheaten, was offered as an expression of gratitude for ordinary providential blessings. Hence as flesh was never meant nor offered thus, though a true offering, this was not strictly-speaking a sacrifice. Moreover, a memorial part (handful) was burnt on the altar for a sweet savour. The greater part was given to Aaron and his sons, one as much as the other, to be used as food with unleavened bread in the Holy Place (Lev. ii. 10). When presented alone it was apparently an expression of gratitude for ordinary providential blessings and was "a thing most holy of the offerings of the Lord made by fire" (Lev. ii. 10). It consisted chiefly of flour, or flour made into cakes, to which wine was added for a drink offering. It was allowed in various forms to suit the diverse circumstances of the people (Lev. ii. 2, 4, 5, 7). No meat offering was to be made with leaven, or with honey or other sweet things, as these turn sour, *i.e.*, ferment; a process closely allied to putrefaction; which again is one of the chief factors in many morbific processes—and often very insanitary. On the other hand, and as opposed to this, every meat offering had to be seasoned with salt; an addition doubtless chiefly symbolic and typical, but also unquestionably and largely sanitary; as it is highly preservative and antiseptic; while by decomposition it gives out one of the most potent destroyers of bacteric and other forms of vegetable life. The meat offering of first fruits was the full green ears of corn, fire-dried with oil and frankincense. All this cremation of vegetable matter, leaving a certain amount of ash, was likely to prove insanitary by its frequent repetition, increasing the bulk of the refuse that had to be dealt with in due sanitary fashion. Clearly, however, the meat offering of the Hebrew ritual was not one of the most insanitary factors in that complex code: although both the sacrificers and the sacrifices clearly contributed to Tabernacle physical contamination.

TABLE XXIII

Consecration of High Priest and Priests

B O—Burnt Offering. P O—Peace Offering. S O—Sin Offering.

Ref.	Texts	Purpose	For whom	Frequency	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense
a	Exod. xxix.	Sin offering	High Priest and Priests	For 7 days	2				1					unleavened oiled unleavened oiled	unleavened unleavened	bread wafers	cakes
b	Ditto	By Aaron and sons		On 8th day	1 B O						1 S O						
c	Ditto	By the people		Ditto	1 P O	1 B O		1 S O	1 P O		1 B O						

This (Table 23) was omitted from Table 16, as it only occurred occasionally, and was thus an uncertain and indefinite insanitary factor, to be legislated for and combated satisfactorily. Still, when this did happen, it is well to shew how far it would contribute to the physical soiling of and hygienic danger to the Tabernacle and Israelitish congregation. On these occasions the blood of the sacrificed bullock had to be poured beside the bottom of the altar. Whereas the inward fat, caul above the liver, the two kidneys and their fat, were burnt on the altar. But the refuse, namely, the hide, flesh, usually the Priests', and the dung, &c., instead of being thrown beyond the camp, as with other sacrifices, were all burnt with fire without the camp, as a sin-offering (Ex. xxix. 14). Moreover, while the whole of one of the two rams was burnt on the altar as a burnt offering; the other, named the Ram of Consecration (Ex. xxix. 23), was also burnt on the altar as a wave or heave offering (Ex. xxix. 25), except the breast, which Moses took as a wave offering, the flesh being boiled and eaten with consecrated bread; and the right shoulder, which was for Aaron and his sons (Ex. xxix. 26). Although most of this sacrifice was cremated out of the camp, and thus dissipated in the most effectual and destructive way, viz., by fire, which lessened the sanitary danger; still the slaughter of animals near the Altar of Burnt Offering, and the function generally, including the concourse of Levitical and Hebrew spectators, necessarily implied crowding, dust, soiling, debris, and physical impurity, and a certain amount of sanitary danger to the community: unless this were speedily and entirely removed by judicious means. These sacrifices lasted seven days; whereas on the eighth day two rams, one lamb, one kid, one bullock, and two calves formed a still heavier finish to the ceremony by their cremation at the usual place, the Altar of Burnt Offering; thereby materially adding on this single day to the sanitary danger by insanitary accumulation of noxious debris—mainly animal.

TABLE XXIV

Offerings for Disease (compulsory)

TO—Trespass Offering. SO—Sin Offering. BO—Burnt Offering.

Ref.	Texts	Occasion	For whom	Ram	Lamb	Goat	Kid	Ox or Bullock	Heifer	Calf	Turtle Dove	Young Pigeons	Birds	Fine Flour Ephah or Deal	Oil Hin	Wine Hin	Frankincense	Cedar Wood, Scarlet and Hyssop
a	Lev. xiv. 4	Leprosy (after cure)	People	1									2 { 1 killed 1 let go					
b	Lev. xiv. 10	Ditto on 8th day	Ditto		2 M { 1 Ewe	1 TO 1 SO								$\frac{3}{10}$	1 log			1
c	Ditto	Ditto (if poor)	Ditto		1 TO						2 or 2 1 SO 1 BO			$\frac{1}{10}$	1			
d	Lev. xiv. 50	Ditto	House										2 { 1 killed 1 let go					1
e	Lev. xv. 14	Running issue after cure, 8th day	Male								2 or 2 { 1 SO 1 BO							
f	Lev. xv. 29	Ditto	Female								2 or 2 { 1 SO 1 BO							
g	Lev. xii. 1	Childbirth, after, 66 days	Male		1						1 or 1 SO							
		,, 33 ,,	Female		BO													
h	Ditto	Ditto (if poor)									2 or 2 1 BO 1 SO							

These (Table 24) included those appertaining to certain very frequent and general male and female physiological conditions; especially those marked 5, 6, 7, and 8. Of these No. 7, the most frequent of all, viz., childbirth, involved the sacrifice of a four-footed animal for every case, and this implied sacrificial debris and sanitary danger. Only one of the two birds offered for each case of body or house leprosy was killed; the other was "let go," *i.e.*, set free to wander in the Desert.

Thus, after a critical survey like this of the Hebrew ritual and list of sacrifices, especially that of large quadrupeds, it must be very apparent that the computable were not the whole of the sacrifices offered on the Altar of Burnt Offering, and did not constitute the entire sanitary danger: and very probable that the uncalculable ones were in both cases by far the greater. Inasmuch as the former must have been vastly increased by those which were, 1st, punitive; 2nd, devotional; and 3rd, thanksgiving in their aim; in a vast congregation of over two millions of souls, many of whom were, especially at first, unruly, irreligious, semi-barbarous, and illiterate. The Hebrews never, even with their many privileges, including the personal Divine supervision and the safe guidance of His laws, while in the Wilderness, became the model nation that God designed them to be, did all He could to help them to become, and would finally have been, if they had fully aided Him. Their history, as recorded by their best earthly friend, Moses, is a proof of this, shews how errant and unwise they were, and how often they were punished in various ways and necessarily very frequently in this mode, namely, by having to sacrifice as a penalty and sign of contrition. But even supposing that each of these incomputable sacrifices in Tables 2 to 9 inclusive had to be offered only once a year, the sum total would clearly add considerably to the sanitary danger. Doubtless some of them, instead of once, occurred many times over; thereby relatively increasing the hygienic danger in a manifold degree. But, speculate as we may on this point, it would clearly be impossible even to guess the vast total of burnt offerings, sin, trespass, peace, meat, and other offerings, voluntary or compulsory, animal and vegetable, of many different kinds that would add their quota to the objectionable refuse. Possibly, nay probably, the non-computable sacrifices far out-numbered the computable or fixed and certain ones. But both added to and indeed created a real, constant, and great sanitary danger and superadded much sanitary work. And it must have been variable and intermittent. For example, this ritualistic and sanitary work would be very large and heavy during their annual and periodic feasts. And many Levitical hands would be required to properly fulfil the rapid and complete removal

of the resulting debris, which no doubt was sometimes enormous, and the speedy riddance of which was so sanitarily essential in that sultry clime and crowded camp. So the sacrificial activity was doubtless stayed or reduced to a minimum when the tribes were on the march; and again necessarily increased on their re-settling, to make up arrears of sacrificial work. A fair example of the occasional press of ritualistic work is furnished by the sacrifices of the 15th of the 7th month or Holy Convocation (Table 16); a function which was yearly repeated. During the eight days over which this ceremony lasted, no fewer than 199 animals were killed; which gives an average of 25 per day (nearly). Of these nearly 9 were bullocks and 13 lambs. This heavy slaughter day by day involves much work, littering, and insanitary soiling of the floor of the Court of the Tabernacle, the Altar of Burnt Offering, its utensils, and of the hands, feet, clothing, &c., of the officiating Priests and Levites. The whole of this often considerable concourse of animals of different kinds had, as the occasion occurred, and that was frequent, to be first collected near and then put to death within the narrow enclosure of the temple. So that if Jehovah had not legislated emphatically, strictly, and with great foresight, the court of the Tabernacle and its immediate environs would have more resembled a noisy, ill-kept, besoiled abbatoir than a quiet and clean place of worship. And the ministering Priests and Levites would have resembled more an array of uncleanly butchers than holy ministers of the living God. To ascertain what these admirable sanitary arrangements really were and their practical value, let us look more closely into them; into the decision with which they were enforced; the precision with which they were carried into effect; and, lastly, the ultimate sanitary result.

Who will aver that the danger of defilement, uncleanliness, and hygienic inferiority of the Hebrew Tabernacle, where all these sacrifices of animals and their subsequent cremation was almost constantly going on day by day, hour by hour, and week by week; involving danger to the health of the Priests, Levites, and people; was not very great. The marvel is indeed that, even with such a staff, they managed to keep the Tabernacle so clean and so free from disease as they did. For not once in the entire history of the Wanderings is it recorded that any disease, infectious or otherwise, originated in or by the Tabernacle or the Hebrew ritual.

Evidently none of the officials connected with the Tabernacle had a sinecure. And who can aver that the High Priest had little or nothing to do in superintending and allotting the number and nature of the sacrifices necessary and obligatory in special cases when appealed to by the people, not well versed

individually in the ceremonial law? Who can say that the Priests had little or no work, while sacrificing or superintending the sacrifice of so many animals, according to law? Who can imagine that the Levites had little or no severe labour in carrying away the debris of these sacrifices fully and at once in accordance with rule; and in keeping the Court and its vicinity and approaches physically clean and clear and healthy; and at the same time preserving the order and decorum of the congregation of worshippers and sacrificers? The wisdom and necessity for the appointment of a large staff, even a whole tribe for Tabernacle work, is more apparent from the sacrificial requirements than from anything else.

The yearly sum total of sacrifices, daily and occasional, large and small, numerically computable and non-calculable, in this small compass and right in the centre of the crowded Hebrew camp, and in a warm septic climate, must have been sometimes enormous. And though it is impossible to compute it, still it is well to attempt in some measure to realize it for purposes of sanitary estimation; and if we would attempt to imagine the enormous and ever-present sanitary danger and insecurity that might have ensued from noxious dust and debris which it implied and involved, and which had to be guarded against to obviate the resulting physical and physiological deterioration of the Hebrews, an increasingly reduced vitality and proneness to disease, and to morbific attacks in many of its worst forms. This would have involved individual tribal and racial results, one and all of which would have been most deplorable; and little likely to aid the Israelites in becoming a model and a leading nation, and, above all, practical exponents of the newborn art and science of hygiene, with which Jehovah had so recently enlightened them. Inattention to this one sanitary item alone, that of Tabernacle sacrificial cleanliness, would have been fatal to Israelitish pre-eminence as a strong, vigorous, healthy people and leader among the nations, as they were intended to be. We shall presently see how Jehovah met the emergency and practically cancelled the sanitary danger He had Himself created in placing the Tabernacle where He did and making its ritual so sacrificial. The survey will compel a full recognition of the sanitary acumen and facility of resource, and completeness of the means taken, not by Moses, but by his Divine sanitary teacher and ours, to meet the grave emergency; which, but for His skill would probably very soon have decimated the camp and people He had promised to multiply as the sands of the sea, by successive epidemics of the many different forms of infectious or contagious disease, that may germinate in favourable circumstances and spread from accumulated putrescent animal and vegetable debris, epidemics

that might have become pandemic and decimated and become a scourge to mankind: and Israelitish holiness; thereby been a hygienic nuisance to the human race. Even if it had only occasionally done this, and the latent danger only now and again and slightly become active, it might thereby have been a constant source of medical anxiety that might have originated further rebellions amongst that easily excited people in that early stage of medical knowledge, when secular sanitary science was yet unborn and undreamt of, Divine hygiene yet untried and unappreciated; and have been most difficult and indeed impossible for cotemporary medical art and skill to satisfactorily meet.

Clearly therefore the indispensable Hebrew sacrificial ritual made the satisfactory solution of the sanitary problem by Jehovah correspondingly complex. Nevertheless, the most critical sanitary minds, even of the present advanced and hyper-critical era, must admit that it was both scientifically and satisfactorily solved. The plan was not that of Moses or of any other human being. It was Divine, and Jehovah's. And the most advanced sanitation of the present day; and most skilled and philosophic of hygeists can do no more and no better than follow in the footsteps of Jehovah's pupil and mouthpiece, the medically-educated and Heaven-instructed man Moses: and wonder at the unwisdom of earlier ages than ours, and even at our own, in ignoring His superlative methods so long.

The Hebrew Tabernacle and its routine thus involved, implied and begat several very important sanitary dangers: and it must be admitted that of these the sacrificial ritual was the greatest and the most frequent. These drawbacks had to be opposed to keep the sacred precincts healthy and make its worship sanitarily innocuous. The hygienic problem which the Deity had thus set Himself to solve was this; not only to make a healthy public assembly, ground, and edifice; but also to make a healthy camp and congregation around this. The result of the sanitary laws instituted for this purpose was broadly to make the Hebrew congregation the healthiest community that has ever yet been drawn together; and their camp a model for all time. How materially the healthiness and sanitary arrangements of Jehovah contributed towards this end will be apparent by our subsequent closer study. It will be noticed that neither did the central tent-like Tabernacle, nor its considerably larger open court, present any point that was in itself decidedly unsanitary. Still the routine and therefore the hygiene of the Tabernacle presented several points of special sanitary interest, importance, and danger. Most prominent among these was the fact of its being the frequent scene of the

sacrificial slaughter and cremation of bulky animals and of vegetable matter, apt to soil and saturate the earthen or rocky floor and entrance, and to make these not only unsightly but also by far the most unsanitary part of the entire camp. It was therefore necessary to legislate specially and clearly in order to overcome or lessen these unsanitary influences, and, if possible, render this, the centre of the camp and special abode of Him whose eye cannot brook even physical impurity, not only the cleanest but also the healthiest part of the entire Hebrew community. Clearly it was not only fitting but just that this Tabernacle, from whence emanated the most ennobling theology, the purest morality, and the best social teaching, should also possess the wisest, corporeal, or physical hygiene. What therefore was done by the Deity to counterbalance the double series of opposing forces, the sanitary on the one hand, and the unsanitary on the other, already pointed out, so as to preserve the health of and prevent disaster in the shape of impaired vitality, disease-shortened lives and death among the Hebrews; results all the more likely to happen unless the unsanitary agencies were counterbalanced by sanitary precautions, especially dire to those who in a sense least deserved it, viz., those who for religious motives and worthy aims most frequented the place for worship and sacrifice; that is those who were the most Godly, and therefore presumably most deserving of the best sanitary care.

What did Jehovah, the supreme and pioneer hygeist, therefore do to lessen unsanitary tendencies and the resulting chances of disease? Of what did Jehovah's main health-preserving agencies consist? Surely this is an enquiry worth unusual attention, even in these modern enlightened times, when sanitary science is so much studied, and already so far advanced; and especially so because the sanitation of the Supreme teaches several prominent hygienic lessons. Nor ought it to be beneath our human dignity to learn from the infinitely superior wisdom of our Maker. The Jehovistic sanitary precautions now alluded to were not single but multiple; and consisted of a combination of devices, the sum total of which was necessary to produce the desired end, by opposing, lessening, and finally cancelling the unsanitary agencies, and thus keeping the Tabernacle and its worshippers, as well as the camp and its residents that lay beyond, pure, clean, generally healthy and free from disease, except those forms that were specially sent on several occasions for sin or for rebellion (Num. xi. 4; Num. xvi.; Numb. xxv.).

The hygienic difficulties which the Supreme had thus to meet by having instituted the Tabernacle and its sacrificial ritual, in the very pivot and centre of the camp, will be better

conceived by surveying the different factors more closely seriatim and in their combined form. Other camps, both communistic and military, had previously been formed in those early, warlike, pastoral and nomadic days, by other nations and tribes, as well as by Abraham and his descendants. Moses himself, once a victorious Egyptian general, had doubtless frequently arranged military camps. But these, doubtless, like those of the newly emancipated Israelites, formed by him for a year after quitting Egypt, were both unskilfully and insanitarily planned in the sight of the Allwise. Otherwise no alteration would have been made in Moses' plans. But hygienic principles and precautions in camping were then little studied; were probably deemed matters of little moment; possibly the last thing to be considered; and often probably never had a thought. But now, as with the faulty physical camp arrangements; so with its doubtless equally indifferent hygiene; Jehovah had taken the matter into His own hands; and accordingly legislated so as not only to make a sanitary church edifice, likely to keep the Hebrew worshippers healthy; but one that would also be a model structure, that would shew not only the Israelites, but the world generally and the human race for all time, how to keep churches, crowded meetings and nomadic camping, as well as more fixed communities, in the very highest sanitary condition. His sanitary ideas and efforts were not crude and elementary then, any more than they are now, but complete and organized. Human hygienic knowledge was inchoate and unformed at that day: but not so that of the Divinity.

The chief methods pursued by Jehovah to keep the Hebrew Tabernacle in a satisfactory sanitary condition; and its worshippers and sacrificers free from disease, may be classed as follows:—

1. The law which enforced that no animal should be offered or accepted for sacrifice if in any manner blemished, maimed, or imperfect; and that everyone should be of the ceremonially "clean" class, mostly young, and perfectly free from disease, excluded all ailing or stricken cattle and beasts, such as the indifferently religious or renegade Israelites might have surreptitiously substituted, instead of their more valuable or useful, because healthy, animals (Lev. xxii. 25). This was a wise law and evident sanitary precaution. Without which, ailing, diseased, and animals that were practically putrefying, even before death, and that would have decayed very rapidly after slaughter, might have originated and spread disease, especially of the infectious type, broadcast, however

speedily and perfectly the refuse was removed. Ingenous substitutions of this sort would have been especially unhygienic; because some very serious animal ailments are identical with and communicable to man both before and after the death of the animal. Morbifically-laden flesh, blood, skins, &c., would have putrefied much more rapidly than if wholesome: and would possibly have done so ere they had time to remove the debris to obviate and forestal this climax, and prevent the ailments it might impart, especially contagious ones. But for this law the irreligious and refractory, compelled to sacrifice, but complying with a bad grace, might have brought animals not only inferior, but also highly dangerous to health, both in life and after slaughter. Modern science recognizes the potent bearing and superlative wisdom of this beneficent sanitary command regarding the inadmissibility of inferior and especially diseased animals for sacrifice, and the implied interdependence and intercommunicability of many human and animal diseases of grave type. This law was thus clearly calculated to materially increase the sanitary safety not only of the Priests and Levites, but that of the entire community and even of the world.

2. The law which enforced ceremonial cleanliness, and that compelled all "unclean" persons to isolate or keep themselves "apart"; or that banished them temporarily "out of the camp"; and thus prevented them from mixing with the general congregation for worship or sacrifice till "inspected" and pronounced ceremonially "clean," was a wise sanitary precaution; and one which therefore, though chiefly, was not purely and altogether typical. The exclusion of the ceremonially "unclean" meant and included the prohibition of all likely to spread that large class of diseases that abound everywhere and comprise the communicable, infectious and contagious class. And though this was largely and perchance mainly typical; unquestionably it was also largely hygienic, sanitary, and preventive of disease. Mosaic "uncleanness" or defilement extended both to persons and things. These all had to avoid meeting and touching. Unclean persons were bound to abstain from frequenting places of Divine service, and from sacrificing, under severe penalties. This "uncleanness" was of different degrees and duration. Sometimes the individual, after certain ceremonies,

was purified by sunset. Others again not till eight days after defilement. No fewer than eleven species of impurity are enumerated in the Levitical law; to which, however, the Jews subsequently added many others. Leprosy begat the severest sort of uncleanness; because it was and is infectious, slow and almost imperceptible in its progress, insidious, offensively loathsome, and disfiguring. Hence as it was with difficulty or altogether incurable, uncleanness from this cause was, as a rule, life-long. The leper had to live apart from others, beyond the camp, or in special leper houses, localities, or villages. They had also to be distinguished by a peculiar dress. To still further mark their proximity and render their near presence clear, they were compelled to cry "unclean, unclean," when anyone approached. They were also forbidden to touch any "clean" person or thing. To be physically leprous was regarded as emblematic of moral taint or corruption, either from original or acquired sin. And the sacrifices for it prefigured Christ's atonement. Still, the disease, leprosy, was not imaginary and solely emblematic or typical, but real (Lev. xiii. 14; Numb. v. 1-4; Deut. xxiv. 8-9). It was as real a disease then as it is now.

The necessity for this law of "uncleanness" in communities like the Hebrew camp; and the extent to which it interpenetrated the daily life of the Israelites, will be shewn by noting a few of the restrictions of the Mosaic code on this point. Thus a person was deemed "unclean" for one and all of the following reasons, much of which is no doubt typical. But that it is not entirely so will be clearly evident to unbiassed minds.

1. Touching a dead body. One object of this law was evidently to prevent unnecessary or superstitious practises with the dead, so common among other nations; for example embalming among the Egyptians. But, as the dead person might have died of plague or some other infectious or contagious disease, was not the law eminently sanitary and preventive, and full of forethought for the living? Another object of this law was to ensure speedy, that is sanitary, burial; an equally wise precautionary measure, even if it were not contagious or infectious; and still more so if it were either. Another object was to inculcate personal cleanliness, and thus prevent the spread of infectious and contagious diseases, from handling or touching. Still another object was to typify ceremonial cleanliness. And yet another to

engender reverence for the human body as God's handiwork; and to inculcate obedience to his laws, even the minutest and apparently the most exacting.

2. To touch or enter a tent where a dead body lay made all unclean. So also every open vessel in such a tent also became unclean (Numb. xix. 14). These rules were mainly symbolic, but clearly sanitary also; as the body, tent, utensils, furniture, &c., might all be contagious or infectious, and therefore from a sanitary point of view, dangerous to handle.
3. It was unlawful to touch a dead body in a field. Clearly this was mainly a typical ordinance (Numb. xxxi. 19).
4. It was also forbidden to touch the bone of a dead person. This might be infectious.
5. It was also unlawful to touch a human grave. This also might re-originate the spread of infection from germs in the soil; although mainly typical in its object.
6. It was also unlawful to touch anything which touched 1, 2, 3, 4, 5, or 6 second-hand (Numb. xix. 6). Thus also might infection be spread; and this rule, though typical, was also clearly sanitary.

Although these laws applied primarily and mainly, not to the Hebrew Tabernacle alone; but also and mainly to the camp and extra-camp life; still, the Israelitish worship and sacrifices formed so intimate and constant a part of that life, that, but for these rules, as for example those regarding touching dead bodies, tents, furniture, graves, &c., all of which might teem with contagious germs; these might one and all have often been thoughtlessly touched, and infection or contagion subsequently carried to the Tabernacle and from thence widely spread amongst the unsuspicious congregation. The double object and twofold interpretation of these restrictive laws does not in the slightest detract from the wisdom and forethought of the Supreme Head of Creation. On the contrary, it is only an additional proof of His wide beneficence, grasp of thought, and facile adaptation of many means to the furtherance and attainment of one great end, human welfare. This wide reading illustrates and magnifies, but does not depreciate the paternal care of Jehovah; and that at a period when hygiene was unknown and microbic asepticism and its importance still undreamt of.

To the clerical mind these laws may be deemed wholly or almost entirely typical; physical being made emblematic of and preceptive of spiritual and moral purity. To the laity they may perchance appear frivolous and perhaps ludicrous and unnecessary. But not triviality, and only forethought and per-

fection ever enter into the methods and laws of the Divine. And, though the medical ideas of that early age may have corresponded somewhat with popular opinion, medical men of the present day will perceive their superlatively beneficent nature as preventive of many diseases from physical contact and aerial infection. Inasmuch as all of the articles named as "unclean" according to the Mosaic law, may have become morbifically contaminated, and thereby dangerous to health and life. A fact of which the Israelites, like many of the multitude even at the present day, might not be aware, and would despise or ignore even if they were informed, even as now. Others again, of fatalistic bias, would reason that if they were to "catch" disease they would inevitably do so, and nothing could or would prevent: and if they were not fated to do this, nothing would happen. And again, then as now, some of the Hebrews would be materialists, and unbelievers or doubters of contagion and infection, because the main factors in these pathological phenomena are microscopic and so minute that they cannot be demonstrated in their passage from person to person by the unaided senses. These laws were necessary to keep the Israelites superlatively healthy. They were also educational, and meant to teach them the great danger that lies in handling or approaching dead and even suspicious things of any kind. That it were well if many of these rules were more closely believed in and followed at the present day is well known to every unprejudiced medical man. Much disease originates even now by ignorantly or wilfully touching or approaching infected things, persons and houses. So that these apparently vexatious laws, constitute one of the many lessons in preventive medicine that Jehovah taught the Israelites over 3,000 years ago; for humanity to copy. No doubt the law was strictly obeyed and enforced by them. And it would be well if, even in modern times, similar precautions regarding infection and contagion were more efficaciously enforced among ourselves; and that persons who have been thrown in the way of infected persons, houses and things, should more strictly avoid the danger of infecting others by isolation till the danger is past, and keeping away from concourses of people, both adult and juvenile, in churches, meetings, public assemblies, schools, markets, &c., all of them frequent sources of contamination and fresh foci of disease. By these rules, during the Wanderings, leprous persons, those with "issues," those defiled by the dead (Numb. v. 1-4) were put out of the camp—that is isolated. They were not allowed to worship, sacrifice, attend the Tabernacle services, or even go to their own homes in the camp till "clean," free from disease, and no longer infected. So that these rules would

especially tend to prevent the fresh inception and spread of infectious and contagious diseases, of which leprosy has been made the Biblical type. They would obviate both the physical and medical contamination of the physically, medically, and typically "clean" congregation by diseased individuals or those carrying infection in their clothing; and were no doubt largely instituted for that purpose. The presence of even one infected person in a crowded congregation might light a flame of contagion sufficient to decimate any camp or community by infecting the air, the Tabernacle, and its furniture, the clothing of the Priests, Levites, and worshippers. And it was therefore hygienically wise to make them "unclean" and so exclude them from public places and functions.

3. The moveable nature and construction of the Tabernacle favoured cleanliness; not only of the different parts, hangings, utensils, skins, &c., of the edifice itself, by permitting these to be frequently shaken, cleaned, and thereby cleared of accumulated germ-laden dust; but was also and especially sanitary by promoting cleanliness of the earthen or rocky floor of the Tabernacle, *i.e.*, of the part most apt to become saturated with blood and other animal matters of a speedily and highly putrefactive and therefore disease-inducing or favouring nature; apt to morbifically contaminate the Tabernacle air, worshippers' and Priests' clothing, &c. The hygienic benefit of this would be most apparent when the Tabernacle had been long settled in one place; for example, after the stay of about one year 'neath the shadow of Mount Sinai, where the Tabernacle was first erected; and especially at Kadesh Barnea, where the Hebrews camped "many days" (Deut. i. 5), and probably stayed some years. Each new site in a previously unused and clean spot, was evidently highly sanitary.

4. As already pointed out, the wood and metals of which the Tabernacle and its furniture were largely constructed, were very sanitary, because easily kept clean, and also by being non-absorbent of unsanitary odours and debris and also non-secretive of morbific germs. Doubtless the Divine Sanitarian had this medico-sanitary end and object clearly in view when He chose the material.

Many of the present day are apt to regard the Hebrew Tabernacle as they do a modern church or Jewish synagogue; and think of it as a place much frequented but chiefly on the Sabbath, but during the rest of the week mainly deserted and

"solemn stillness all." During Sunday, the Hebrew holy and rest day, and doubtless the chief day for praise and prayer and public worship, it was doubtless crowded, especially during the morning and evening incense oblation (Ex. xxx. 7-8). But the Tabernacle week days also had their duties and were largely given to sacrifice; and that on a large scale. Consequently the Hebrew camp was a busy scene and much frequented all the week. Consequently the Hebrew camp was a busy scene every day; and much frequented all the week, not only by its own staff but also by devout Israelites, penitents, and thanksgiving sacrificers. Nay, it was by day, particularly morning and evening, by far the busiest part of the entire Hebrew camp. For it was the sole church for the devout of two millions of people. It was the focus of heavy and constant week-day slaughter of sacrificial animals. It required a large staff of from 6,000 to 7,000 Priests and Levites to carry on its sacred functions satisfactorily. Clearly this concourse of active people, in a very limited space; intent on duly and speedily performing each their special function, whether of service or sacrifice, involved a physical danger, and thereby a secondary sanitary one of confusion, imperfect performance of duties, and a frame of mind little consistent with the sacredness of the place as God's abode, ill adapted for His worship and for the solemn ritual appertaining thereto. Jostling, bad temper, an unseemly frame of mind on the part of the people; the same on the part of the Priests and Levites would be the outcome, combined with soiling of clothing, furniture and littering of the floor and vicinity of the Tabernacle, but for the Divine regulations.

In order that the worship of Jehovah and the functions of the Tabernacle should be properly performed; that is as the Deity desired them to be, notwithstanding all this constant and heavy daily human and animal traffic and heavy sacrificial slaughter, it was necessary

1st. That the place itself should be kept quiet, sacred, clean and orderly (Ex. xxix. 34).

2nd. That the Priests and Levites should be aided in performing their adulatory, sacrificial, and hygienic functions decorously, speedily, and effectually.

3rd. That the people should be allowed and helped to worship and to sacrifice quietly, holily and fully.

Clearly, therefore, it was essentially necessary, in order to effect this, that the regulation of the entire service and ritual and routine should be concise, clear, widely known, and imperative; both for the Tabernacle staff and the worshippers. This complex problem in sanitation the Deity did not leave to the fallible judgment of Moses; but Himself undertook to meet the

combined spiritual and hygienic emergency; and did this as usual, simply and wisely.

The busy staff of the Tabernacle and expectant people often made the Court and its vicinity the most crowded and busiest part of the entire Hebrew camp. Sanitarians will readily perceive how materially and that in many different ways the judicious regulation and apportionment of duties of the enormous staff of the very small Hebrew Tabernacle, would contribute to its sanitary perfection; especially when we remember the families and crowds that would resort thither from the dusty or muddy, desert-girt camp; the heavy and dirty work that had to be done there in sacrificing, cremating, and carrying away the resulting refuse; duties that had to be done decorously and in order, as became the sacredness of the place and the function. The systematized and strictly enforced division of labour and carefully apportioned and regulated duties of the staff of the Tabernacle, including those of the High Priest, Priests, and Levites; all of them directed by Jehovah were therefore clearly of as great hygienic importance here as they are wherever large and frequent massing of human beings take place, especially in a comparatively small space. The primary and main object of this system and order was obviously sacred, and meant to promote the decorous solemnity and quiet necessary for soul communion with God and His proper worship. This was clearly as necessary for the Priests, who read the law, and Levites, who sacrificed and worked, as it was for the people who worshipped. But who can doubt that this had also a secondary subordinate and yet most important object; and was also hygienic. And that, but for this, the Hebrew ritual and its worship would have been both ill-regulated and disorderly; its sacrifices conducted with confusion and uncleanness; and the Tabernacle soon and at all times distasteful both to sight and sense, and very far from being a "holy" place, where the God of "purity" was worshipped. The sanitary importance of a proper routine was very great, as it prevented confusion, irregularity, and promoted system, order, and, above all, cleanliness, especially in those matters most apt to engender uncleanliness and therefore disease, namely, the sacrificial ritual. Thereby and conjointly both soul and body hygiene were benefited. Indeed, few things could be adduced that would contribute more to perfect the hygiene of this often crowded building, than orderly systematized and well-regulated enforcement of those ritualistic duties, that were so multifarious, and could not be omitted, relegated, or delayed. On the march and both in taking down and putting up the Tabernacle, the different functions of the staff were very systematic and non-transferable. So also it no doubt was when the Tabernacle

was re-erected and its functions in full operation. To prevent jostling and confusion each Priest and Levite attended zealously and solely to his own special duties. And no doubt Aaron, supreme in religious and Tabernacle routine and management, imitated Moses in civil matters, and on finding ceremonial affairs too heavy for him to bear, chose the ablest and wisest of the Levites to help him (Ex. xviii. 24-26); and thereby made the Hebrews to know the statutes of God and His laws (Ex. xviii. 16). As a result and thereby not only would the necessary solemnity be preserved; but also cleanliness and the complete fulfilment of the special clerical duties and functions for which the Tabernacle was chiefly designed. Thus the Tabernacle, although the very busiest part of the entire Hebrew camp, was kept not only quiet and orderly, but also in the highest sanitary condition. This part of the great sanitary problem of the Hebrew Tabernacle therefore consisted in apportioning each individual family or tribe its own duties; so that no indecorous confusion or disputes might arise; and the regularity and peaceful sanctity appertaining to God's house and the Divine proximity might be maintained. With this end in view the special duties of the staff and each branch thereof were all and severally outlined and specified by the Supreme. So that thereby not only might the chief end and aim of the Tabernacle, namely, God's worship, honour, and glory, be fully maintained, but nothing done while effecting this, to make the officiating staff or worshippers unhealthy. Thus:—

1. As regards the High Priest Aaron; he alone was anointed on consecration as head of the staff (Lev. viii. 12).
    - *a* The High Priest alone was permitted to enter the Holy of Holies. And then only once a year, viz., on the great Day of Atonement, when he sprinkled the blood of the sin offering on the Mercy Seat, and burnt incense within the vail (Lev. xvi.). Then, according to the Talmudists, he donned white linen. Josephus says he did so only there and resumed his pontifical robes on exit (Lev. xvi. 4-32).
    - *b* Again, the High Priest ruled the Tabernacle and its services as well as the entire staff of Priests and Levites: either by himself or by the second Priest or "Sagan." A managing head to direct affairs is as necessary in clerical as in civil and military bodies.

c It was also the duty of Aaron and his sons to wait on the Priests' office and keep charge of the sanctuary. No one else was permitted to do this. The stranger who dared to attempt it and "cometh nigh shall be put to death" (Numb. iii. 10).

This clear definition of the High Priest's duties contributed to make the functions of the Tabernacle and its entire staff orderly; and thus to aid the hygiene of the place. For sanitary as well as other reasons; all large assemblies and their ministering staffs must have a recognised and capable head.

2. The Priests likewise had their definite and apportioned duties. As they were specially holy and separate from the people, they were exempt from fighting, field and other kinds of labour; and were specially set apart for Tabernacle duty, and had special duties and rules to obey. These duties were chiefly sacrificial and sanitary. As a typical ordinance no blemished Priest could offer sacrifice (Lev. xxi. 16-24). They were exempt from work and its accompanying cares; because they had to go through their ministrations serenely and with appointed reverential awe (Lev. xix. 28). In accordance with their sacred duties they were commanded to drink no wine or strong drink (Lev. x. 9 ; Ezek. xliv. 21), as Nadab and Abihu probably did to excess, and were punished accordingly (Lev. x. 1-9). The duties of the Priests were clearly laid down. Their chief aim was to assist the High Priest. Thus it was their duty

a To watch the fire of the Altar of Burnt Offering, and keep it ever alight (Lev. vi. 12).

b To feed the golden lamp with oil (Ex. xxvii. 20-21).

c To offer the morning and the evening sacrifices, each accompanied with a meat and a drink offering: and perform the general duties of the Tabernacle.

d To be ready at any time to sacrifice for the guilt-stricken or rejoicing laity: and thus act as mediators between God and the people (Numb. vi. 1-21).

e To teach the children God's statutes (Lev. x. 11), and act as spiritual shepherds, educators and civilizers of the adults. The Priests' lips were to keep knowledge (Mal. ii. 7). It was their duty to expound the law.

f To bless the people at every solemn meeting (Numb. vi. 22-27).
g To cover the ark and sacred vessels with scarlet cloth before the Levites touched them for removal (Numb. v. 15).
h To "blow an alarm" or long silver trumpet at the beginning of the march (Numb. x. 1-8).
k To incite on the field of battle.
l To act as a court of appeal in difficult criminal or civil controversies (Deut. xvii. 8-13; Deut. xxi. 5).

Everyone of these were physical duties appointed for moral, social, or spiritual ends; and evidently one and all of medico-sanitary as well as of moral, social, and spiritual hygienic importance. They did much to preserve order and decorum in the sacred edifice.

One of Aaron's sons, Eleazer, had special duties assigned him; and work for which he was specially dedicated (Numb. iv.). Thus:—

a He took charge of the oil for the light.
b Do. sweet incense.
c Do. daily meat offering.
d Do. holy anointing oil.
e He had oversight of the Tabernacle and the sanctuary.
f Do. all that therein is and the vessels thereof.

In connection with this it is well to remember that these duties were given to Aaron's sons instead of the sons of Moses, because the latter were not Priests, only Levites. Moses sons, however, were also specially honoured by having the care of the sacred vessels; and carrying burdens in connection with the Tabernacle service (Numb. iv. 24-28). This new priesthood did not establish itself without a struggle. Some looked back to the old patriarchal order rather than forward to the new.

3. So the Levites (Kohathites, Gershonites, and Merarites) also had definite duties assigned them by Jehovah. Like the High Priest and Priests so the Levites were also set apart and ceremonially cleansed and dedicated for their work (Numb. viii. 5-12). That inalienable work was to guard, keep clean, and ready for use the furniture, furnishings and Tabernacle itself. And as these collectively so also each individually had his own duties, apportioned no doubt by Aaron and his sons (Numb. iv. 18), all meant primarily to prevent confusion and promote solemnity; but also to aid Tabernacle cleanliness and sanitation. It was theirs

to do the heavy and mechanical service of the Israelites in the Tabernacle, as directed (Numb. iv. 17-29). Thus, to particularize:—

a It was the Levites who removed the Tabernacle, took it down, carried it and its belongings, set it up again on re-camping. "And when the Tabernacle setteth forward the Levites shall take it down; and when the Tabernacle is to be pitched the Levites shall set it up (Numb. i. 51). No other Israelite or stranger had this honour. "And the stranger that cometh nigh shall be put to death (Lev. i. 51). The Gershomites and Merarites did the heavy carrying, the Gershomites bearing the drapery, curtains, hangings, &c.; while the Merarites, who had the most available men, carried the bulkier and heavier material—boards, bars, pillars, &c. (Numb. iv. 24); and to aid them had, the former two, and the latter one wagon. The Kohathites had no wagon; and were specially honoured by having to carry the articles of the sacred places, the ark, brazen altar, vessels, &c., on their shoulders (see camp).

b The Levites generally, aided and obeyed the Priests in the Tabernacle duties; especially by removing the sacrificial debris and keeping the Court clean.

c It was theirs to fetch wood and water, &c., for the sacrifices and laver.

d They sang and played on instruments for the Tabernacle service.

e They studied the law to aid the people therein and supplement the Priests.

f They were the ordinary judges, under the Priests; and attended to the minor while these did the major cases.

These duties were no doubt apportioned by the High Priest, Priests, or leading Levites to families and individuals in rotation. The Levites had likewise no other work or fighting to do. To support them they had a tithe of the people's corn, fruit, cattle, &c. While on Tabernacle duty they were supported by provisions in store and offerings. They had no peculiar dress (Numb. viii. 5-7). These orderly arrangements were sanitary and in every other point of view wise. A well-devised and carefully carried out routine was indeed necessary and unavoidable, in order to enable the staff of the Tabernacle

to accomplish its arduous and multifarious tasks without confusion or discord. The Tabernacle was not meant to be looked at and God-worshipped at a distance. Its court was meant to be entered, and was neither seldom nor sparsely frequented. Indeed no part of the entire Hebrew camp could have, at least by day, presented such a constant scene of activity; or was more alive with people, Levites, and Priests; busy not alone in their special sacrificial duties; but also in preventing antagonism of interests between different tribes, families, ranks, and ages. One and all of the staff thus taught the many and great advantages of the *systematic* pursuit of work and of duty, as exemplified by celerity of execution, non-repetition of labour, cleanliness, and placidity of execution; would no doubt enforce similar rules on their pupils, the congregation. And that, in accordance therewith the worship of God, learning of the law, bringing the various sacrifices at specific times, the conduct of the Priests and leading Levites, and so forth, were all carefully regulated so as to prevent friction and promote the proper, speedy, and decorous worship of Jehovah, and all that this implied. Order and system reigned supreme in all of the many different services and functions of the Hebrew Tabernacle. And the result included non-interference, but on the contrary the promotion of this with the health of the community, either in body, mind, morals, or souls. It was altogether sanitary; both physiologically and spiritually. In this the Priests and Levites were thus, under God, the instructors. For the Hebrews then, like ourselves, were no doubt deeply tinged with secular taint, as opposed to heavenly aspirations and duties; in which pride, arrogance, and a desire for precedence, which invaded even the family circle and the priesthood (Numb. xii. 1) had a prominent place and had to be combated.

The Priests and Levites were the hardest worked of the entire Hebrew camp; and perhaps the chief toil was in teaching method and system to their fellow countrymen; so numerous and oft so unruly. Clearly the duties of the Levites were the heaviest. Their toil and anxiety were constant, daily, and very much increased at the festivals: and far harder even than the field, flock, and household labours of the laity. Nor would a very small staff of Levites have sufficed for the humble yet most important and imperative task of debris removal, necessary to promote that amount of thorough cleanliness which Jehovah would alone tolerate, not only as a recognition of his own purity (Deut. xxiii. 14); but in fulfilment of the demands of the great law of physical and physiological hygiene which he had purposely come to divulge to fallible humanity, and to illustrate on his own select people, as a law that forms by no means the least important part of the Heaven-devised code

known as the Mosaic. When we think well over the large and constant amount of sacrificing that must have been going on from day to day and year to year; and more particularly as to the conditions that prevailed in some of the longest inhabited camps, such as that of Kadesh-Barnea, it seems marvellous that much and serious sickness, especially epidemic diseases, did not frequently ensue. This can only be accounted for by Heaven's special protective intervention and supervision; and very largely if not mainly also by the foundation and mainspring of all sanitation, so thoroughly carried out, namely, the strict promotion of physical cleanliness by the constant, strenuous, God-devised and Heaven-helped efforts of Aaron and his large well-ordered and willing staff of Priests and Levites.

6. Although not recorded in the Pentateuch, as has been done regarding the erection, taking down, and care of the Tabernacle and its duties; no doubt the different sacrifices and oblations were regulated in a similar systematic manner by Aaron and his sons; and carried out by his well-drilled Levites. Otherwise these would have caused great unnecessary and unsanitary bustle, confusion, waste of time, labour, worry, and, worse than all, uncleanness by persons and families arriving at the same and perhaps at inconvenient times; individuals perhaps not so gifted as the Priests with patience, the faculty of obedience, and the feeling of sanctity for holy things and sacred functions. Doubtless the High Priest and his sons or selected Levites had to decide for the people as to the kind of sacrifice each had to offer, when sacrifice was necessary, and when this had to be carried into effect. The Levites were doubtless told off in relays to aid the Priests in sacrifice, and removing debris quietly, decorously, and speedily in accordance with the law. An arrangement of this kind was clearly necessary, not only for the due performance of their ceremonial duties, but also for the satisfactory sanitation of the Tabernacle and the health of the congregation. Each of the staff, high and low, had to systematically perform his allotted duties, in the multifarious work of the very limited space allotted for the worship and sacrificial ritual of more than two millions of souls, often unruly and obstinate and necessary to sway with a firm hand. Possibly, like Moses with the select 70 elders, Aaron had a council of wise and senior Levites to aid him and his priestly sons in their obviously arduous work. Clearly it was only by

thorough and perpetual system and regularity and by a methodical staff that the sanitation of the Tabernacle could be kept at its highest. This included the regulated cleansing of the altar; the systematic removal of its objectionable and unsanitary sacrificial debris; that of the sacrificed animals; the cleanliness of the oft-soiled floor of the Court; the care of the constantly burning altar fire; cleanliness of the furniture, utensils, hangings; and purity of the Tabernacle atmosphere: duties far more numerous, constant and arduous than in any modern church.

7. So also, in accordance with the Divine tuition, the worship of the Hebrew Tabernacle was doubtless systematically regulated. No record of rules has been given; that being deemed a matter of minor importance. But we can easily see how impossible it would be for decorous, proper and lengthy service or prayer or law study to be satisfactorily carried on in such an enormous community, especially during the great festivals, in which the whole congregation were supposed to join; and the devout to mass themselves in such a limited court, without a system of relays, repeated and regulated services. Like ourselves, the Hebrews, even those of the Exodus and the Wanderings, who had seen so many proofs of Divine care and who ought to have been superlatively pious, no doubt evinced different degrees of devoutness, and different degrees at different times. Probably the absentees were numerous; perhaps the majority, except when conscience-stricken and penitent. Possibly the Hebrew women were the most Godly and the chief worshippers (Ex. xxxviii. 8). At the morning and evening oblation the Court may have held easily all who appeared. As probable for ordinary sacrificing, so probably for ordinary worship, different tribes came at different hours or on different days. But clearly, at the festivals, without some arrangement of this kind, the whole of that vast community could not conveniently assemble at the same time, either for morning or for evening worship. The details Aaron, his sons, and the leading Levites no doubt arranged satisfactorily both for their own and the convenience of the congregation; and necessarily in accordance with the sacred function for which they were specially set apart, the service meant, and the Divine being they symbolically worshipped thereby.

8. Ventilation, so necessary to keep the air of any edifice

large or small, pure was also attended to both in the construction and in the routine of the Tabernacle. The constant renewal of air, that is the removal of contaminated and its replacement by pure air, is one of the most important factors in sanitation. Because it is by the breath and the lungs that some of the deadliest poisons, gaseous and physically microscopic, enter the body and blood, and therein produce some of the deadliest and most frequent of diseases. It will be readily understood why it is that ventilation becomes all the more important when the building or enclosure is small; apt to be crowded and physically contaminated by other noxious matters, odours, and gases besides human ones. Every one of these sanitary dangers was not only present but excessive in the Hebrew Tabernacle: and had to be met by appropriate measures. Without the latter in perfection much disease might have originated in and spread from this public resort: the atmosphere of which was especially apt to be super-contaminated, so that no part of the entire camp required better sanitation and especially ventilation than this, its focus, for the following reasons: *first*, from the frequent massing together of eager worshippers and active officials who vitiated the air by their breath and organic effluvia, and dust they developed; *second*, by the odours and smoke of the sacrificial fires, and emanations from living and dead animals; and *third*, by emanations from the sodden blood and sacrificed-soiled Tabernacle floor, bodies and clothing of the officiating Priests and Levites and furniture. This obvious sanitary danger was met and to a certain extent minimized by the Court being not closed or partially so, but completely open; as this permitted these warm effluvia to rise, escape, and become dispersed high overhead. The open area of the Tabernacle and the space in which it was pitched thus acted as a lung or ventilator for the worshippers and the entire camp. This natural process of ventilation was moreover largely aided by the constantly burning fire of the burnt altar, which stood near the middle of the Court; and, though to a less extent, by that of the constantly burning incense altar; both first lit by fire from Heaven at Aaron's consecration (Lev. ix. 24; Lev. xiii.; Lev. x. 1). These, even when small, would materially increase this uptake of warm but impure air, and the resulting intake or under current of colder

but purer air from the camp all round; a result necessarily much increased when sacrificing was in progress on both altars. Jehovah thus employed in miniature in the ventilation of the Tabernacle the same process he employs on a mammoth scale to ventilate and purify the surface air of the earth by an uptake of heated air at the equator. To destroy by dispersion and diffusion so much moist animal matter as these Hebrew sacrifices included, the fire on the Altar of Burnt Offering must often have been both large and fierce; thus making an indraft and an uptake to correspond. And thus these were greatest when most required, namely, when the Court was most crowded and the sacrificing largest and most frequent, as at the festivals. By this constant ventilating, indraught and uptake, the smoke, breath and odour-laden impure Tabernacle air was removed; and that which the staff and the congregation breathed kept constantly pure and fresh and cool; as was also the camp air all round. Thus the two functions of sacrifice and sanitation were satisfactorily combined; and both the Tabernacle and camp benefited thereby. And the very function so apt to render the Tabernacle insanitary was made to minister to the healthiness of the entire congregation. No worshipper ever met with disease in any shape by breathing an impure atmosphere while engaged in those devotional duties which the Deity desired. Thus also the health of the Priests and the Levites who breathed this atmosphere longest and in its most concentrated form in the discharge of their duties by the altar, was preserved. So likewise was that of the most frequent worshippers, so that in seeking Godliness they did not throw away health. While by the same comprehensive means the air of the entire camp and the health of the whole Hebrew community were benefited. The sacrificial smoke and odours, and those of the people, instead of accumulating in a closed-in building to such an extent that both the staff and congregation would soon have had to vacate, were at once carried overhead and dispersed, ere they could do mischief.

The heat and uptake of air caused by the combustion of the morning and evening incense that increased the perpetual flame twice a day, as it rose into the air with the intercessory prayer of the priest and people also aided this ventilation somewhat, though in a minor manner. So likewise the heat from the seven-branched candlestick in the Holy Place, that

likewise burned continually (Deut. xxiv. 21) would add its influence to the general uptake and purification of the Tabernacle proper as the Altar of Burnt Offering did for the larger court. By removing vitiated air these would combine to remove a fertile cause of disease. These centres of constant combustion would ventilate the Hebrew Tabernacle and even the camp very much as the ordinary fire or stove of a room or dwelling does its atmosphere. In legislating hygienically the Deity thus taught the Hebrews and us plainly the wisdom of following Nature's leading and His laws in sanitary matters. Heat and cold are the most simple and potent of ventilators and air-purifiers; by which the thickly-peopled earth's surface is mainly ventilated and the highly impure lower strata of air is carried high overhead, to be scattered, weakened and purified by slow oxidation.

9. Cleanliness, the most potent of all the different factors in sanitation, may be said to have been the watchword of the Hebrew Tabernacle. The excessive purity which was insisted on in the camp was still more necessary for the Tabernacle. As already mentioned, this implied the removal of all offensive matters, even in material or physical things, and especially in the sacrifices. The chief reason for it is clearly given. This was the special dwelling-place of Jehovah. "For the Lord thy God walketh in the midst of the camp: therefore shall thy camp be holy that he see no unclean thing in thee and turn away from thee" (Deut. xxiii. 14). But, nevertheless, the sanitary object is equally apparent, as it was superlatively necessary. And therefore the need for this super-cleanliness and the law to enforce it were inculcated and re-iterated with a frequency and minuteness that, to non-medical minds, may seem not only unnecessary but even absurd: although modern sanitarians, aware of the invisability, universality, vitality, and morbific potency of microbic germs in the earth, the water, and the atmosphere, especially in its lower or humanly-inhabited layers will not deem them so. Cleanliness of the entire compound being Man, and of his every organ and function, was one of the chief points in the teaching of the Hebrew religion and ritual. Cleanliness, not of the body alone, but also of the soul, heart, mind, and morals were all strongly inculcated; often conjointly. And the duties and results of these were closely connected and intertwined. So that to follow or obey the one was to aid the other; thus indicating their co-relation, and

illustrating the well-known saying that cleanliness is next to Godliness. Nay, it is more; for is it not a part of Godliness; and one of those commands we ought to obey like every other Divine law?

The main object of everyone of the sanitary agents already spoken of as being those which the Divinity Himself appointed and enforced to promote the sanitary efficiency of the Hebrew Tabernacle; namely, *first*, the sacrifice of unblemished animals only; *second*, the admission of ceremonially and therefore physically and medically clean persons only into the Tabernacle for sacrifice and worship; *third*, the removability of the Tabernacle; *fourth*, the special architecture and material of the Tabernacle; *fifth*, the systematized priestly and Levitical duties; *sixth*, the systematic regulation of the sacrifices; *seventh*, the methodical management of the congregation for worship and instruction; *eighth*, and the proper ventilation of the Tabernacle; were one and all either directly or indirectly meant to promote sanitary, *i.e.*, physical and medical cleanliness. But, in addition to these, there were certain other very important rules and laws laid down by the Supreme Sanitarian, the being who had taken the hygienic management not only of this but of all else connected with the Hebrew camp, into his own hands; that had this same great and fundamental factor in all sanitation, viz., cleanliness as its main object. To these we must now direct our attention.

Unquestionably the main object, both of all these agencies already spoken of as well as of those of which we are now about to speak, was typical or allegorical: and their chief intention and object to promote the highest of all the departments of cleanliness, namely, psychical, spiritual, soul, moral, heart, and social purity; and to deeply and constantly impress on the Hebrews the imperative necessity of the great base fact of all Jehovah-guided religion, namely, cleanliness of thought, word and deed, not in prayer only, but in life, practice, and in our worship of the God of purity. Then, as now, Jehovah desires not lip but soul service; and asks not the physically clean, but only the pure in heart, to approach Him (Mat. v. 8; Deut. x. 12; 2 Tim. ii. 22; Joel ii. 13; Ps. l. 7-14). But still no unbiassed and enlightened mind will follow the lead and short-sightedness of past ages; or can doubt that still another beneficent and God-like, though secondary and minor object was, to promote the sanitation of the Hebrew camp and race. Who can combine and manipulate psychical, vital and physical forces like the Divinity who created them, so as to make one or a combination of factors promote several very different and distinct objects and thus make them converge in one great end?

Jehovah skilfully combines sanitary with other important

life lessons. And it is not one variety of sanitation that He teaches in and by the Mosaic code. Other parts and functions of the human organism have to be cared for as well as the physical. Hence soul, heart, home, and body hygiene are all taught. The Deity legislated hygienically for the body as well as for the soul by the laws he instituted for the Hebrew Tabernacle. And though he clearly and wisely deems soul hygiene by far the more important, as we also ought, He does not neglect the other, but indicates its value, proves that they are both human; that the two should go hand in hand; and also how this may be effected. Nor was the cleanliness enforced by the Divinity for promoting the health of the Tabernacle and its worshippers, confined to these alone. It also extended to the ailing and the diseased. Thus the leper had to wash and rewash every inspection, till cured and symbolically "clean." So with other diseases; the law being mainly figurative of soul purity, but secondarily meant to teach body cleanliness; soul and frame hygiene being thus combined.

a The first factor towards the induction of perfect cleanliness in and around the Hebrew Tabernacle was the hyper-purity inculcated on the staff connected with the Hebrew service and ritual. No doubt because not only would they have otherwise been the first to contract disease themselves; but from special functions and constant intercourse with the public, the readiest also to convey it to the entire Hebrew congregation, through those to whom they had ministered. For this purpose special systematic arrangements and laws were made, and given, like all else, by Jehovah Himself. These laws inculcating cleanliness no doubt contributed largely to the perfect sanitation of the Tabernacle in two ways; not only by their own influence, but also by the educational and imitative force of good example of those who were respected and reverenced by the laity. Cleanly habits and methods are often potently contagious educationally; especially if persistently taught. As the High Priest and Priests had to be physically as well as ceremonially perfect and free from bodily blemishes, defects and diseases; and otherwise were wholly disqualified from holding office; so likewise they had to be pure and free from all ceremonial defilements when officiating. For example, from the defilements of leprosy, running issue, touching any "unclean" thing, *e.g.*, a dead body, creeping thing, &c., or even an unclean person. They were then compelled to refrain from their ordinary duties till again "clean" cere-

monially; and even from touching any of the holy things or from eating them (Lev. xxii. 4-6) under penalty for disobedience (Lev. xxii. 3). So also they had to refrain from ordinary mourning for the dead and from intoxicants. These restrictions were mainly typical and the latter also exemplary; but they were likewise inculcative of that great hygienic fact, the importance of excessive cleanliness to health and life, that it is impossible for anyone to be too clean; and that this sanitary item is not alone applicable to the learned or the "better' classes of society. The purifications inculcated on persons and things to enable them to rejoin Divine worship were of various kinds. They were mostly performed with water; sometimes with blood; sometimes with oil; and occasionally with fire (Numb. xxxi. 22-23). Two kinds of washings were inculcated on the Hebrew Priests. 1, the High Priest and Priests had to be washed on initiation to raise them from the taint of an inferior condition of humanity and elevate them into a higher and purer state. It was thus that Aaron and his sons were set apart for the Priesthood (Lev. viii. 6-9; xix. 10). 2, washing had to be undergone to fit persons for special acts of religious service: *e.g.*, Priests had, on pain of death, to wash their hands before they approached the Altar of God (Ex. xxx. 17, 3); *i.e.*, to sacrifice, which was necessarily very often. The Mosaic law recognises eleven instances where uncleanness required this ablution (Lev. xii. 15). The Egyptian Priests carried these ablutions and cleansings to a great extent. Thus they shaved the whole body every third day. They also washed in cold water every day, and twice every night. The washing of the clothing and the whole of the bodies of the Hebrew High Priest and Priests by immersion on consecration or of proselytes on initiation and admission to the sanctuary was general, entire, and performed once for all (Ex. xxix. 4). This was evidently mainly symbolic (Ex. xxix.; Levit. viii.). The partial washings of the hands, feet, cups, and vessels, called dipping or pouring water, were daily repeated and frequent within the Court of the Tabernacle at the laver (Heb. x. 19-22). These, though largely typical were also largely sanitary and absolutely necessary for ordinary cleanliness, to say nothing of the superlative purity that should characterize Jehovah's special servants. Special laws were laid

down by Jehovah for these acts of ministration in his Tabernacle. Thus they had to serve bare-footed (Ex. xxxi. 19; xl. 31). To sacrifice in sandals would have been to soil a pair each time and make them not only highly unsanitary and blood-soaked, but also "unclean" ceremonially. So also before entering the Tent of the Congregation or Holy Place they had to wash their hands and feet; because both were in constant use, and often soiled by blood, dust, and official work during sacrifice, and therefore required frequent cleansing (Ex. xxx. 17-21; xl. 30-32). This occasion arose at least morning and evening; and far oftener at the festivals and many other sacrifices previously mentioned. It was to facilitate this that the laver was given as part of the Tabernacle furniture. It was the special rôle of the Priests to make the sacrifice, and that of the Levites to assist and clear away the debris: from around the Altar of Burnt Offering, the soil or floor around which was thus clearly apt to be especially blood-soaked and stained, when the staff were most busily employed. Those partial ablutions are clearly mainly symbolic of the sacredness of the rite and of their functions and the place; and corresponded with Moses being requested to remove his shoes on approaching the burning bush (Ex. iii. 5). But when we consider the limited room of the Court; the numerous large sacrifices; that the Priests and Levites were the chief performers in this function, therefore those who, next to the aiding Levites, would be most besmirched and soiled with blood, &c.; it will be equally apparent that this repeated washing and cleansing of the naked feet which trod the blood-soaked soil, and the hands that manipulated the bloody and smoke-grimed sacrifices, was more than typical, and was in fact a necessary sanitary ordeal of a most important kind, without which every place and thing in and about the Tabernacle, including their clothing and that of the congregation, would soon have become physically filthy and in several ways dangerous to individual and public health, and subversive of the sanitary pre-eminence of the pure and sacred Tabernacle. Not only the hands and feet, but also the Priest's body generally, his head, hair, and his garments had to be kept scrupulously clean: so that the laver, with its doubtless frequently renewed water, was indispensable (Ex. xl. 30-32) both for the service of the Holy Place and that of the Altar of

Burnt Offering. What applied to the Priests also did to the heavy workers and assistants, the Levites. Their hands, feet, bodies, and clothing had to be at all times both physically and ceremonially clean. So likewise had those of the worshippers and sacrificers from the camp. The combined result of all this physical super-cleanliness was indirectly to promote the purity and sweetness of the atmosphere of the Tabernacle; a sanitary factor essential to the health both of its staff and its frequenters; and also to both as a possible focus of infection to carry to the camp beyond. Who therefore can fail to see the important sanitary nature of these Jehovistic rules, super-added to their main typical function; for all employed in the not over cleanly acts of animal sacrifice appertaining to the Hebrew ritual?

b Our advanced and practical modern sanitary science compels both private individuals and public companies to keep slaughter-houses and abattoirs, public lavatories, &c., scrupulously clean, by constant compulsory removal of noxious debris; *i.e.*, matters of a kind likely to putrefy and cause disease. But in the early Mosaic days of medicine, and especially of sanitary science, the great importance of cleanliness in everything was only very imperfectly recognized, and the Divine laws, as laid down in the Mosaic code, were practically unknown or ignored beyond the Hebrews; although these were just such as were required under the circumstances, as they forcibly inculcated instant removal of danger-laden debris, as a means to aid perfect cleanliness of all connected with the camp and the Tabernacle. But for this hygienic law, inculcated and initiated by Jehovah, the Tabernacle would soon have become like a badly kept and organized slaughter-house, redolent with sickening sights, disgusting odours, and deadly diseases; and therefore not only unfit for a resort for public sacrifice, religious worship, private mediation, and prayer; and still less a suitable dwelling for Jehovah. If the Supreme had not made these important and compulsory sanitary laws when he framed the ceremonial and sacrificial, as well as the spiritual, moral, and social ones; and in one and all of these inculcated the highest degree of purity and cleanliness; and, above all, enforced in the hygienic laws the immediate removal of all noxious and dangerous animal and vegetable refuse, the Hebrew camp, and especially its most danger-laden

part from a sanitary standpoint, the Central Tabernacle would doubtless have become what many a crowded camp has since then been made, owing to faulty sanitation, a nursery and hot-bed of disease, especially of the infectious and contagious type, that might have originated not only among the worshipping frequenters, but would probably have started from the Priests and Levites who camped round and near the Tabernacle and also worked in and near the filth-laden soil and contaminated atmosphere. In accordance with this special rules were laid down for the cleanliness of the Tabernacle itself and its environment, especially of its floor around the Altar of Burnt Offering, where so many sacrifices were made, and where therefore the likelihood of unsanitary accumulations were most likely to occur. Unquestionably this factor contributed very largely to the hygiene and the healthiness of the Tabernacle. When a sacrifice, large or small, was made, not only was the resulting animal and wood ashes and debris, but also the unburnt remains of the animal ordered to be removed from the Tabernacle at once and carried beyond the camp, some to be burnt up there, others to be deposited where they could do no sanitary harm. By these precautions, constant and inexorable, insanitary smells, effluvia, and bactericidal germination in the sacrificial debris or the Tabernacle soil, or in its furniture or its air, were forestalled and prevented, as was also their result, disease. For thus the purity of the Tabernacle atmosphere, by ventilation and renewal, was aided by reducing its vitiation to a minimum. Thereby bacterial and contagious diseases could neither find an inlet nor a footing. The danger-laden refuse was carried by the Priests or Levites where the gases, fluids, odours, and bacterial germs it might engender by decomposition would either die at once or be carried by the winds into the desert beyond where they could do no detriment to Priest, Levite, or Hebrew. Moreover, the equally strict law (Deut. xxiii. 13) against the deposit of other objectionable because putrefactive and therefore morbific matters, solid or liquid, in the camp, was of a necessity tenfold more applicable to the sacred place; which it would have been the deepest sacrilege to soil. It would be especially necessary to enforce this law for this public resort, the Tabernacle, for a camp of two millions of people. Here no lavatories were per-

mitted for High Priest, Levite, or Hebrew. They would have been more out of place here than in the camp. In this sacred spot perfect purity in everything and in every person was highly obligatory. And thus a visit to the Tabernacle for worship or sacrifice was healthy and not the reverse, as it brought the individual into an atmosphere and an environment which were more sanitary than those of the camp. And the longer the stay there the greater was the medico-hygienic benefit thereby derived. In carrying out holy practices fully the Hebrews thus added materially to their physiological health. The hyper-cleanliness thus enforced on all for the Hebrew Tabernacle; and meant to preserve the health of the staff and the congregation; involved and implied not only personal but also camp hygiene: that is it included public and national sanitation. It implied that the camp, Tabernacle, and entire Hebrew nation should be both ceremonially and physically clean. Nay, it was universal sanitation: for it was meant to enlighten the world in effective, that is immediate and complete sewage removal. Jehovah required that the Tabernacle should be both ceremonially and physically clean, in compliment to Himself and His purity; but also in order to promote the hygiene and health both of the human soul and body.

Unquestionably all this evident, constant and deep attention to promote perfect cleanliness, inculcated on the Hebrews and therefore indirectly on us, are given for a wide purpose. For these, God's laws of health are as obligatory on us now as they were on the Israelites of old. They include cleanliness in its many forms and in everything pertaining to humanity and to human life, to eating, drinking, breathing, touching, all that mortality does, says, and even thinks, and to be carried out both in their public Tabernacle duties, but also in their private camp life. And, though primarily and chiefly allegorical or symbolic, they were in themselves and secondarily educational not only of soul sanitation, but also of body hygiene: and silently instilled the Godliness, comfort, health, and benefits of personal cleanliness; a matter now universally known to be a matter of the highest import in health and of especial value during sickness. The grand and often-repeated theme of the hygiene of the Tabernacle is scrupulous cleanliness. And the means for promoting this are so numerous and frequently repeated as, to the medically untutored mind, to seem not only ridiculously minute but such as medically taught intellects of the present day will readily and fully admire for their multiple

aim, depth, force, wisdom, forethought, and comprehensiveness: especially as their combined efficacy, was shewn in the grand result, a healthy Tabernacle, camp, and congregation. Much of the cleanliness and purity inculcated by the Levitical regime had thus clearly not a typical object only, but was likewise sanitary and thus had a double aim and object. And while it inculcated holiness and a reverence for God and His worship, also taught the necessity that exists for human physical purity, and the avoidance of personal filthiness and uncleanness in various degrees, often a generator of disease in many forms and of none more frequently than infectious and contagious ones: and also shewed that soul health and body health equally require cleanliness, the one spiritual and the other physical; the latter so often and so aptly employed in the Pentateuch and Holy Scriptures throughout, as symbolic of the former; even as the bodily disease named leprosy is of the soul disease called sin.

In this department of cleanliness, as with others in the Mosaic hygiene and also with that specially connected with the Hebrew Tabernacle, some of the items are clearly typical only; others again are mainly or only sanitary; while again some, perhaps the majority, or at least the more important, evidently have both purposes in view. Thus:—

a The washing of the Priests before consecration; also washing of their hands before entering the Holy place or approaching the Altar (Ex. xxx. 17, 3) were evidently purely typical; as were other acts.

b Frequent washing of the hands, feet, cups, vessels, &c., *i.e.*, "dipping" during sacrifice, was clearly not only typical but also sanitary, and highly so.

c The instant and complete removal of sacrificial debris to beyond the camp was an example of a law, which, though typical of the physical purity required by Jehovah in His holy place, was also and mainly an imperative sanitary command of a most important kind.

Excessive physical cleanliness, similar to that so strongly insisted on in the Pentateuch, is daily becoming more and more accepted as the basis of all true and effective private and public sanitation. It is also the chief factor in the modern discovery of antisepsis, as applied not only in hygiene or preventive medicine, but also in the various sub-divisions of curative medicine, especially surgery, obstetries, and gynæcology. Though highly laudatory and worthy of the wisdom, love, forethought, and comprehensiveness of Jehovah, the supreme sanitarian, towards our rebel race; is it not on the other hand humiliating, nay culpable, in humanity, that the Pentateuch and

Mosaic law, and their Divine Testator have been ineffectually teaching mankind regarding both of these great sanitary laws for ages; and pointing out the absolute necessity for hyper-cleanliness, not only for the attainment and preservation of perfect health, but also for the relief and cure of all the many different diseased and semi-morbific conditions of the body; and goes far beyond us in revealing the same necessity for similar high purity in all other human parts and more important functions, the soul, heart and home?

10. *Disinfection* is the last but not the least important factor which the Divine Hygeist employed to aid the sanitation of the Tabernacle and to make it perfect. As already pointed out, the air of this part more than any other portion of the camp was especially apt to be contaminated, and often very much vitiated; and that mainly by the two following factors; viz., 1st, the breath and body-odours of the Levites and worshippers; and 2nd, by the odours and smoke of the cremating sacrifices and burning wood. And it has been shewn how the Divine Hygeist legislated accordingly, by making the heat of the typical sacrificial and incense fires perform the office of ventilating aids by making a constant and often strong uptake of heated air, and thus creating an influx or under-current of colder but purer air. Even if the Egyptian medical Priests, or the astute On-taught Moses had been gifted with the genius necessary to devise such a simple yet efficacious idea, which neither had, they would have failed in the sanitary instinct to see what the prescience and the sanitary perfection of the Deity did; viz., that even this scheme, admirable as it was for combining sacrifice and sanitation, and thus making the typical subserve the physical, was not alone sufficient to prevent disease; and that there yet lurked another danger in the environment of the Hebrew camp and congregation. For from yonder Hebrew graveyard, ever present, though well beyond the camp on one side, for every one of the 50 camps of the Wanderings no doubt had its deaths; while some, as when a long stay was made, *e.g.*, at Kadesh Barnea, or where some plague or punishment decimated the camp, and sometimes did so from septic diseases: or the air from yon leper colony on another outskirt of the camp: or still, again, the wind from the direction of yonder putrescent debris-heap in still another quarter: or that from over the disease-laden camp of a neighbouring foe; or even from some distant

Eastern region whence the danger-laden air of plague, cholera, or black death might be blown across the Hebrew camp, carrying decimation in its train to depopulate the Hebrew camp, as many an unfortunate oriental city has since been. The internal foes of this nature had already been met by keeping the Tabernacle and its air scrupulously clean, and thus as free from morbific germs and as little disease-favouring and disease-generating as possible. Only one thing now remained to make the sanitary measures complete, and that was to guard against the same or similar agencies from outside. This result was attained by disinfecting and thereby killing and rendering innocuous any disease germs that, coming from abroad, might be caught by the camp in the Tabernacle, to lurk there till they found the air, water, earth, or bodies of the Hebrews a suitable soil, when they would wake from the passive and assume the active stage and beget disease of direst kinds, especially of the acutely contagious types.

To meet this emergency, difficulty, and danger, the Divine Sanitarian made yet another of His wise combinations of means to ends, by causing the constant bi-daily renewal of odoriferous and germicidal incense-burning to be of such a nature as to disinfect the air of the Tabernacle ere it was breathed or while it was inhaled by the Priests, Levites, and worshippers. Thereby not only their lungs, skin, blood and body generally disinfected; but in their clothing they carried off its health-preserving, disease-opposing odour and influence, to benefit their families and homes. Though ancient and mediæval medical knowledge could not, the light of modern science can now readily read and explain all this. And it indicates that the incense burning of the Holy Place, though mainly typical (Lev. xvi. 13) was not entirely so; but clearly had a double aim and object, and was also largely hygienic, and was especially preventive of a very large and deadly class of diseases, namely, the infectious and contagious. The immensity and imminence of this danger, and the apposite nature of the remedy to lessen or obviate it, will be fully apparent and appreciated by modern sanitarians; although it was evidently obscure or not at all clear to the limited secular knowledge of former days.

The presence of microscopic microbes, more of vegetable than of animal nature, and the disinfection of air, water, earth, clothing, houses, utensils, in or on which they lurk, necessary to modify or kill these morbific varieties of human foes; and a knowledge of the laws which govern both, were wholly un-

known even to the Hebrew or Egyptian Priest-physicians or to the still more illiterate and less enlightened medicine men of other nations. But it was no semi-ignorant human being who thus and then legislated hygienically against them and their over-development as a danger to humanity. It was the Creator of every form of life who did so; and the maker of the forces and laws which govern these; those of hygiene included. The author of the system was the sole creator; and therefore He who alone knows all things and encompasses all knowledge; for every philosophy and each science is of His making, and humanity only their interpreters. It was the Being who knew not only that wonderful microscopic world of life, then unknown to man and undiscovered till the present century: and who necessarily did not forget the danger or the disease-producing purpose for which they were doubtless occasionally and for some wise and beneficent purpose created. But the question necessarily arises, was this biological fact, the existence of a world of life of distinctly and often of supereminently morbific or dangerous tendencies, but too minute for the unaided eye to detect; as well as their pathogenic nature; and also the opposing germicidal influence of disinfecting processes; and again the secondary or sanitary object of the incense burning in the Hebrew Tabernacle; were these one and all unknown to Moses? Some of the shrewder medical minds of post-Mosaic date have no doubt suspected, although, for obvious reasons, they could not prove at least some of these facts. Acron of Agrigentum (B.C. 429) was the first to seem to have anticipated a great and beneficent modern discovery by causing fires to be made and aromatics thrown into these to purify the air, and thereby put a stop to the plague at Athens. Other medical men of later date have hinted, even before the microscope was medically utilized as to the rationale and the possibility of contagious diseases having their origin in microscopic forms of life. But it was not till the present century that the great truth was discovered and mystery solved practically.

One of the most memorable and important incidents in the history of modern botany, and indirectly of modern medicine, was the discovery of a numerically vast world of microscopic life in the form of minute rods (bacteria) or minute sphores (micrococci); some directly or indirectly favourable to human life; others innocuous to it; and others again parasitically morbific to mankind: and potent mainly on account of their countless numbers, amazingly rapid reproduction, and great tenacity of life. These, or their spores exist practically everywhere, in the air, water, earth, and ocean; one and all of them being invisible to the naked eye. The morbific varieties gain

an entrance into the human body, its tissues and blood, either by the skin, lungs, or stomach: and by their countless and rapid multiplication cause those many serious and deadly diseases known as the contagious and infectious. Now we realize their existence and results, various means are tried to oppose or eject them from the body, having gained an entrance; or better still, to prevent them from gaining a footing in the frame. One of the most important of these is the employment of germ killers or germ sterilizers, called microbicides or bactericides: which may be solid, liquid, or gaseous. Mineral varieties, such as the Mercuric Bi-chloride (corrosive sublimate) were chiefly tried at first. More lately vegetable and animal ones have been tried. Koch found the aromatic oil of peppermint more efficacious than the strong mineral now mentioned. He thus struck a new vein of enquiry parallel with the far older hints of the Pentateuch. The odours which nature everywhere distils and disseminates from leaf and stem, flower and fruit, and thereby scents the atmosphere, are no doubt very often both sanitary and sanatory. And thus it is probably to this great storehouse of creation that we ought to look for preservatives and curatives of many of the manifold varieties of disease to which flesh is heir, especially the contagious.

And, considering his mission, general acumen, and heaven-lit enlightenment, why should not Moses, a far greater genius than any of these, have followed up Jehovah's hint or revelation, and instead of merely suspecting, actually known of the existence of both the biological, pathological, and therapeutic facts: the cause, cure and rationale being all alike explained to His servant, the existence of microbes, their pathogenic tendencies, and the nature and object of disinfection being alike taught as links in one chain of medical reasoning. Most men of genius find life too brief to give time to write and reveal all they believe or know. How much Moses must have thought and learnt during his lengthy life and his Heaven-favoured career. Many books could not have contained all he knew. And possibly he was not permitted to reveal more than he actually wrote. Such facts as those now spoken of were doubtless among those intentionally left for mankind to find out for themselves. Had the Hebrews generally been more facile, Godward, and less rebellious, perchance matters might have been different; and this might have been superadded to other revelations. Like moderns who have to fumigate the masses as he and Aaron did in the Tabernacle, and who work among intellects as ignorant of its nature and utility and object as doubtless were the early Hebrews; Moses was only allowed to reveal and to chronicle certain things. And, accordingly,

wrote certain bare facts; which mankind of that day had to receive on trust; thereby to exercise their human faith in Almighty prescience and knowledge.

As with other orientals, perfumes were from early times grateful to the Hebrews (Prov. xxvii. 9); and this familiarized them with their varieties. For, like others, their Eastern olfactories were very sensitive to the offensive smells which their warm climate was apt to speedily eliminate from quickly putrefying animal and vegetable matter. And it apparently did not occur to them then any more than it often does to the masses now, that the best way to get rid of offensive odours is, to *prevent* them by at once removing their cause. Hence the preparation of perfumes in the form either of incense or of ointment was a recognised and important profession among the Jews (Ex. xxx. 25-35). As with the physicians so the Hebrew apothecaries were doubtless Priests or Levites. This is proved by the wording of Jehovah's directions regarding the proportions of the Holy Incense (Ex. xxxvii. 29), and the Holy Anointing Oil (Ex. xxx. 25). Arabia, Palestine and the adjacent regions furnished the necessary aromatic plants, spices, &c. These they applied in various ways. In these early times they enjoyed perfumes in one or other or in all of the subjoined ways:—

a A bunch of odoriferous plants was sometimes worn as a nosegay or in a bag (Cant. i. 3).

b Or the scent was carried in a smelling bottle in the girdle (Is. iii. 20).

c Or the aroma was extracted and fixed by boiling; and then by admixture with oil as ointment (John xii. 3).

d Or the odoriferous powder was fumigated (Cant. iii. 6).

e Or the breath was scented by chewing frankincense.

f Or the skin was made odoriferous by washing in Rose water.

g Or drinkables were made odoriferous by addition and solution of the perfume, or by perfuming them.

In one or other of these different methods, perfumes were much used in private life at that day; as for example:—

1. To different parts of the body, especially the head (Lev. viii. 12) and feet (Luke vii. 38).
2. To the garments (Ps. xlv. 8; Cant. iv. 11).
3. To the furniture, particularly the bed (Prov. vii. 17).
4. To dead bodies for embalming (Mark xiv. 8; Gen. l. 2), as Jacob by the Physicians, B.C. 1689.
5. At funerals (John xix. 40).

Embalming or preserving the dead body was a very ancient custom among the Egyptians, who believed that the souls, even after many thousands of years would re-inhabit bodies if thus

preserved entire. This custom Moses exploded among the Hebrews. And the fact is merely recorded here to shew that preservatives and microbicides were long used to keep dead bodies and animal matter from decay: as they are now employed to keep living forms, human and otherwise, from disease; clearly a distinct though most important medical and therapeutic advance. The costly spices and aromatic drugs with which corpses among the Egyptians and Hebrews (the latter no doubt pupils of the former) were embalmed, and closely swathed in mummy fashion, were highly antiseptic and preservative. That is, they preserved bodies, not as once believed, from simple chemical disintegration, *i.e.*, eremicausis, slow combustion, or oxidation, but from the attack of and destruction by those minute forms of animal and vegetable life by which decay is usually carried on: while at the same time they act in a similar beneficent fashion for those who may breathe the air they contaminate. So also, partly with the latter object in view, great piles of aromatics were set on fire at the funerals of some Jewish monarchs; and not alone to consume their bowels, armour, and other things, but to act as air cleansers and bactericides (2 Chron. xvi. 14; Jer. xxxiv. 5). In domestic life the rooms a guest was to occupy were fumigated in his honour on arrival. The guest himself was sprinkled with rose-water; incense being also applied to his face and beard. When a Royal person went abroad in his litter, "pillars of smoke" were thrown up about his path (Cant. iii. 6).

Can there be a doubt that this lavish and wide-spread use of perfumes in ancient days was not only agreeable but also unwittingly healthy and sanitarily wise? Did it not overcome unhealthy as well as unpleasant odours; and was thus the outcome of a natural instinct; and sanitary as well as æsthetic? But, in the light of modern science, and from a microbe-killing or weakening point of view the practice appears still more apparently sanitary. Like that universal diet-instinct which has accurately and without other guidance chosen the most sanitary articles of diet for human beings (see Diet Chap.), so this sanitary acumen is likewise judicious. Yet, even on this, the mighty Sanitary-law Maker made still another decided and important advance, by causing the constant use of the best perfumes, especially those embodied in the Holy Incense and the Holy Ointment, to enter largely into the service and worship of the Tabernacle; thereby making the holiness of the Hebrews conduce largely to their healthiness.

What did this constant burning and breathing of incense by the Hebrews imply? and what did its never-ceasing elimination and re-absorption by the Priests' and Levites' clothing and the

Tabernacle-drapery effect? Simply the more or less constant and frequent inhalation of incense-odour by the worshippers and its entry into their blood. So that practically the entire congregation and camp were ever bathed in a highly odoriferous atmosphere. It is therefore worth enquiring as to the nature of these odours and their virtues. In the light of modern secular science they were decidedly not only sanatory or healing but also sanitary or health-preserving. Some idea of this seems to have occurred to Maimonides, who thinks that the object of the incense in the Jewish ritual was threefold; thus:—

1st. That it was typical of the intercession of the High Priest.

2nd. That it was a symbol of prayer.

3rd. And that it was meant to prevent the stench arising from the many beasts slaughtered daily; and was thereby also intended to promote veneration and reverence for the Holy Place and the rites performed there.

Maimonides was unquestionably right. No doubt the main object of the incense odour was typical and symbolic: soul health and hygiene being infinitely more important than those of the body. But the third object is of more importance than even he imagined. No doubt the incense odour was deodorant, and lessened or covered the animal and vegetable odours of the Court of the Tabernacle. But it was far more; and was also bactericidal and therefore essentially and powerfully disinfectant, disease-repellent and disease-destructive. This incense oblation was one of the chief ceremonials in the Hebrew ritual. So sacred was it deemed that it was one of the principal duties of the High Priest, and his alone. Its main object was clearly defined by Jehovah, who instituted it; and, to use his own language, it was meant as a "sweet-smelling savour" to God. It was an index and a symbol of the united prayers of Priest and people; and a physical proof of their fealty, love, and adoration. But, as the odoriferous vapours were wafted more or less constantly and widely over the tents of the Hebrew camp by the Desert airs; and still more as they were absorbed and retained in the highly recipient textures of the robes of the staff and the hangings of the Tabernacle, to be evaporated and exhaled therefrom by the heat of the human body and the sun, thus making the Tabernacle a constant and perfect fount of antiseptic and bactericidal incense perfume, to be breathed both by Priest and people as they came to sacrifice and worship: so that the entire two millions of Hebrews, from Moses downwards, became impregnated in clothing, lungs, blood, and tissues, with pleasant aromatic vegetable odours, oils, and balsams, one and all inimical to the vitality of the microscopic germs, the multipli-

cation of which in the body causes so many of the most virulent and deadly diseases that man has to encounter: and at least aggravates these by adding another, and that a parasitic debilitating influence to the original disease, and introducing thus another foe for the already weakened body to combat. Had these perfumes therefore no other than a typical purpose? In thus directing and engrafting this physical element in the Jewish worship: and while thus directing the hygiene of the souls of the Hebrews, did not the Almighty Wisdom legislate as only Divinity could, by incorporating this with their medical or body hygiene; and fulfilling two important objects with one simple yet efficacious effort.

The Altar of Burnt Incense, and its perpetual fire, while performing their main office and acting as a typical and ceremonial agent; the odour as it ascended being typical of the advocacy of Him who "ever liveth to make intercession for us" (Rev. viii. 3-4); was, all the time and still more at the morning and evening sacrifice (Ex. xxx. 7-8), and again specially at the great day of atonement (Lev. xvi. 12), made to aid the sanitary function of the Altar of Burnt Offering, by benefiting the Hebrews in another way than allegorical, viz., by promoting the healthiness and hygiene not only of the oft-crowded and therefore soiled sacrificial Court of the Tabernacle, but also the entire camp. The incense altar thus combined the function of promoting both the Hebrew body and soul hygiene. It was thus a physical as well as a spiritual sanitary agent. That the sweet-smelling incense, perfume, or confection (Ex. xxx. 35) burnt in the Holy Place by the Priests, and by them alone, and also on the great day of expiation, when the High Priest put incense on the fire at the moment of entry into the sanctuary, so that the smoke might prevent him from seeing the Ark and Mercy Seat too curiously, and the penalty of neglecting which was death (Lev. xvi. 13): was mainly symbolic and ceremonial; is clearly seen from Jehovah's own words "it shall be unto thee holy for the Lord. Whosoever shall make like unto that to smell thereto shall even be cut off from his people (Ex. xxx. 37-38). But, is not obedience to and fulfilment of God's health laws, and a desire to keep our bodies sound, included in "holiness to the Lord," who bestowed them for us individually to take care of, and an integral though minor part of this duty and privilege? And, viewed in the light of modern re-search, this incense burning had also an unmistakeable medico-hygienic as well as a soul-hygienic office to perform; and helped to preserve the health of the Hebrews and to prevent disease, especially those infectious and contagious maladies that have so often attacked and decimated camps, armies, and more fixed communities, mainly from the morbific effects of grossly unsanitary

arrangements, incompatible with health where mankind congregate. This command of Jehovah and important part of the Hebrew ritual was clearly a happy forestalling of a modern era-making, scientifico-medical discovery. Can we doubt that, considering the Authorship and the inspiration, the function of incense burning was intentional, Heaven-devised, practically hygienic, tuitional, and based on a full knowledge of the application of certain objects towards important desired ends: and a perception not only of the causes of disease but also of the best way to prevent and remedy them. And that this furnishes only another instance where Bible science, even more practical and advanced than secular science and philosophy, clearly forestalls this by many centuries, and that, once more again from a medical point of view. The ordinary odours of these aromatics or sweet spices (Ex. xxx. 34) were not only pleasantly odoriferous but also highly antiseptic or preservative of purity of all with which they came in contact: as they also were when more rapidly volatilized and disseminated by heat. In other words they were microbicidal or germicidal. They destroyed the life of and thus rendered inert and innocuous to human beings, those pathological microscopic vegetable forms of life and their minuter germs, that cause so many infectious and contagious diseases. And, heated or burnt and so volatilized on the Altar of Burnt Incense, they were spread widecast exactly when and where they were most required, and most likely to be efficacious; namely, where the insanitary odours of recent and perchance already semi-putrid blood of living or dead cattle and the excretive emanations from human beings were most concentrated, as were also the crowds likely to be affected thereby; namely, in and near the Court of the Tabernacle.

Moreover, there were certain things about the Tabernacle, its Court, and the persons and clothing of its staff, that would greatly promote the medico-hygienic effect of this incense burning; thus:—

1. Some materials are far more adapted than others for the absorption, retention, and dissemination of odours, whether pleasant or unpleasant. Among the chief of these we may quote hair, wool, &c. Hence the hair and beard of the High Priest, Priests, Levites, and Hebrews, would all act as strong repositories and re-disseminators of the incense odour. Their loose and flowing garments would act similarly; as they were made of fine twined linen; an open material well fitted to promote both the rapid absorption and speedy emission of the health-promoting scent. Again, the hair-covered badger (seal) and ram's skins and the

woven goats' hair coverings, and twined linen curtains of the sides and doorways of the Tabernacle, would all have more or less of the same effect. So would the open linen curtains of the Court. The curtains and the triple covered roof of the Tabernacle proper, in the interior of which the incense was burnt, would necessarily receive, concentrate, and again emit the incense odour in its strongest form; especially as the place was small and closed. So would the beard, hair, and garments of the ministering High Priest and Priests, as they were nearest the odour-generating altar, and their draperies were the speediest and freest absorbers and emitters of the odour, under the diffusive influence of the sultry sun of Arabia. The result must have been that, very soon after this incense-burning Tabernacle function was instituted, everything belonging to or connected with the edifice, even the clothing of the people who went most frequently to worship, would be thoroughly impregnated with germicidal scents, and redolent of health-giving perfumes; that it would ultimately be almost impossible to eradicate from the different belongings of the sacred place.

2. The large amount of material consumed must also be realized in order to fully appreciate the potent bactericidal sanitary utility and hygienic importance of this cleanly and healthy oblation. The highly fragrant perfume, confection, or holy incense, consisted of the following ingredients. The chief one was frankincense; and this was mixed with the following sweet spices: stacte, onycha, and galbanum, of each 70 manehs—total 280 manehs (a maneh = 2lbs. 6oz.). Of this one maneh was used daily for the ordinary service, half in the morning and half in the evening. These were "mixed after the skill of the Apothecary Uri (Ex. xxxi. 11); no doubt a Priest (Neh. iii. 8); who was extraordinarily endowed with the spirit of wisdom (Ex. xxxi. 2); and tempered the ingredients together into a pure and holy perfume (Ex. xxx. 36). Probably this was done under the superintendence of one of Aaron's sons, set apart to act as physician, to attend to leprous and other ailments, as well as to the necessary isolation and general hygiene. Later on, Rabbinical tradition says, to this functionary, the apothecary, one of the 15 Prefects of the subsequent temple, a portion of the building was devoted, called from the name of the family whose special duty it was

to prepare the incense and have a constant store ready, "the House of Abtines." The Jewish doctors affirm that seven other ingredients, named by Jarchi, were communicated to Moses on Mount Sinai. Josephus says thirteen. According to Maimonides the compound should read thus:—

1.	Frankincense	70	manehs	
2.	Stacte	„	„	
3.	Onycha	„	„	
4.	Galbanum	„	„	
5.	Myrrh	16	„	Total weight of the confection 368 manehs—
6.	Cassia	„	„	
7.	Spikenard	„	„	
8.	Saffron	„	„	
9.	Costas	12	„	
10.	Cinnamon	9	„	
11.	Sweet bark	3	„	

To these were added ¼ part of a cab of salt of sodium; with amber of the Jordan; and the "smoke raiser," a secret herb.

A supply of this "most holy" incense was always kept, and specially set apart for the service of the sanctuary (Ex. xxx. 36). One maneh was used in the ordinary daily service, half in the morning and half in the evening. The incense was not to be imitated either in composition or smell; but specially set apart for the service of the sanctuary. That which is specially God's must not be used as a common thing (Ex. xxx. 38). Its desecration was punished with death (Ex. xxx. 37-8). This incense had a threefold characteristic, viz., 1, it was salted, a symbol of corruptness; 2, it was pure; and 3, it was most holy (Ex. xxx. 36). No sacrifice was offered without it, except the wine of the drink offerings, the blood, and the wood (Lev. ii. 13). Aaron, as High Priest, was originally appointed to offer it. But subsequently in the daily service of the temple this office devolved on inferior Priests, chosen by lot morning and evening. A peculiar blessing was supposed to be attached to the office. Therefore the lot was usually cast among those "new to the incense." Uzziah was punished for presuming to infringe the prerogative of the descendant of Aaron (2 Chron. xxiv. 16).

The sweet-smelling savour of this incense, volatilized by heat, as it rose toward Heaven and spread over the Tabernacle and camp was no doubt mainly ceremonial, symbolic, and emblematic of God, the intercession of Christ, and synonymous of worship and prayer. Its four ingredients as given by Moses, corresponded to the perfection and four names of God. But no doubt it was something more than merely typical and was a physical as well as a ceremonial agent. Maimonides regarded

it as merely a perfume designed to counteract the effluvia arising from the beasts slaughtered for the daily sacrifice. This was a decidedly advanced idea. But he did not go far enough, and only half-guessed the truth. Modern science confirms this; but yet differs in going much further, and averring that the incense offering was meant for a treble purpose, namely:

1st. As a *symbol of prayer* (Ps. cxli. 2; Rev. v. 8); of intercession worship; an offering of a sweet-smelling savour. Therein and so far it was, as it was mainly typical.

2nd. As a *deodorant* to cover obnoxious and dangerous smells.

3rd. As a *microbicide* or microbe sterilizer or disinfectant proper; to prevent disease by killing or weakening and rendering pathologically inert the microscopic germs of deadly diseases of the infectious and contagious type. It is doubtful if modern science could devise a better for both of the latter essentially medical purposes. This combined typical and sanitary purpose is surely not accidental but clearly premeditated. And it is a distinct forestalling by the Creator of the modern discovery of asepticism. The Divine Sanitarian acted and advised and selected His chemicals thus, with a full knowledge of the truest, most scientific and best principles of sanitation.

Another Tabernacle perfume possessing similar hygienic properties in addition to its main typical ones was the "Oil of Holy Ointment" or "holy anointing oil" (Ex. xxx. 25): so much employed in the Hebrew ceremonial, especially in the consecration of Aaron, the Priests, and their successors, whose garments were sprinkled with this (Ex. xxix. 21). This ointment was very different from the oil used for oblations and in many ceremonial observances. Like the Holy Incense, this was compounded after the art of the apothecary or perfumer. This was likewise a free-will offering of the people (Ex. xxv. 1-7). Its precise composition has been given in the Pentateuch; and consisted mainly of spices somewhat similar to those of the Holy Incense. Thus:—

1.	Pure myrrh -	500 shekels,	equal to	250 oz.
2.	Cassia, - -	500 „	„	250 „
3.	Sweet Cinnamon,	250 „	„	125 „
4.	Sweet Calamus	250 „	„	125 „
5.	Olive oil -	1 hin,	about	5 quarts or 12lbs. 8oz.
			Total weight -	60 lbs.

With this ointment Moses had to anoint (Ex. xxx. 30):—

a The Tabernacle of the Congregation.
b The Ark.
c The Table and its vessels.
d The Golden Candlestick and its vessel.
e The Altar of Incense.
f The Altar of Burnt Offering and its vessels.
g The Laver and its foot.
h Aaron and his sons on consecration.

This process of anointing rendered these *holy* (Ex. xxx. 29); and thereby all that touched them or that they touched (Ex. xxx. 29). In Eastern countries guests were commonly welcomed and personally comforted with grateful perfumes and ointments. But the Holy Anointing Oil was not to be used for this social and friendly purpose (Ex. xxx. 32). Neither was it to be imitated in composition or odour (Ex. xxx. 32). Disregard of this injunction was punishable with death (Ex. xxx. 33). It was not to be put on other men's flesh than the Priests', especially on strangers (Ex. xxx. 30-3). Like the Holy Incense, so the use of this Holy Anointing Oil was not only symbolic, ceremonial, and devotional, as its odour rose, like prayer and praise, to God: but was something more. No doubt, like the incense, this penetrating and lasting smell, more fixed but more lasting than that of the vapoury perfume, was highly deodorant and also germicidal; and was thus and thereby preventive of infectious and contagious disease; a very large class of ailments, of which the then well-known leprosy, a chronic complaint, was only one example. The practical sanitary utility and efficacy of this, in a thickly peopled camp, and in a part of this often apt to be overcrowded and thus impure in more ways than one; and from different causes unsanitary, cannot be over-rated.

So recently as fifty or even thirty years ago this pungent, persistent ointment odour, like that of the Holy incense, was deemed purely typical and symbolic; for the simple reason that no other object could then be ascribed to it at that stage of human knowledge. Like the incense odour, however, so with this ointment variety; it doubtless had a double function to perform, and was not only typical and meant to promote and symbolize spiritual hygiene; but also medical and helpful of corporeal sanitation. This secondary but very important object could not have been guessed at by ordinary medical minds of that day; although it was probably revealed to Moses, until the discovery of the so-called germ theory, now more aptly named the germ fact. At the present day, however, we are beginning to realize that Jehovah's hygienic legislation, teaching, and beneficence in the Wilderness over 3,000 years

ago were far deeper and more importantly anticipative than usually known and acknowledged. The bactericidal object of the incense and ointment odours could not have been suspected till the 19th Century discovery of the minute yet undescribably potent microscopic world of vegetable life, as frequent and very formidable morbific foes of humankind. Till then, men did not know how wisely and well Jehovah had legislated in medical matters; or how pregnant was the lesson he inculcated by this daily and continuous disinfecting process induced by the incense and ointment of the Hebrew ritual, to help them to ward off or get rid of those diseases in which mankind had enveloped themselves by their own folly ever since the disease-free days of Eden.

To the odours generated by the Holy Incense and Ointment, still a third must be added, namely, that which would necessarily emanate from the wood material of the Tabernacle proper, heated by the semi-tropical sun of Arabia, to be more fully spoken of hereafter.

These threefold odours, *first*, of the incense offering burnt twice a day; *second*, of the Holy Oil or Ointment, with which the Court, furniture, High Priest, Priests, and Levites must have been strongly scented, because freshly impregnated by morning and evening addition; and *third*, the smell of the sun-heated Tabernacle material; were not only constantly breathed into the lungs; absorbed by the clothing of the ceremonially "clean" worshippers and sacrificers; but were also wafted far and wide over the camp and the home-keepers as the Desert winds varied, to impregnate tent, furniture, utensils and apparel; and carry with them not only the deodorant disinfectant, and at the same time pleasant and grateful aromas that these Easterns so much loved, but also health and healing to the people. They thus aided in preserving the original hereditary vitality and strength of the Abrahamic stock as a legacy to future generations. And no doubt they also warded off or banished such ailments as *phthisis*, leprosy, and other more acute infectious and contagious diseases that otherwise might have afflicted them, as they have often done other camps, both civil and military, as well in those as in subsequent ages: but of which no record or hint is left as regards the Israelites; shewing that they never did afflict them. From these *health-bringing* odours the Hebrew camp and people could seldom if ever have been free. And each time an individual went to the Tabernacle for worship or sacrifice he necessarily inhaled these antiseptic sanitary and sanatory odours in an intensified form, especially when the High Priest was performing the morning or evening ritual. The clothing of the High Priest, Priests, and Levites presented some points that were of no inconsider-

able sanitary importance as favouring this absorption of odours and its re-dissemination. Their official clothing was white; a sanitary colour which easily shewed when it was soiled and required cleansing. The material was linen, easily kept clean, and both highly absorbent and retentive of the Tabernacle sacrificial health-giving, health-preserving, disease-preventing odours. It was thus highly sanitary. From a double point of view, so also were the linen curtains and hangings of the Tabernacle and skins that roofed the Tabernacle proper, and for the same reasons. Freely absorbed by one and all of these, the odours were redistributed among the worshipping Hebrews in the Outer Court, where Priests and people mingled in the sacrificial services. The inhalation of these odours may often not have been very strong; but it was *unavoidable*, and it was *constant*: so that, even had they desired, they could not evade it. They must have penetrated to the inner recesses of the lungs, and thence to the blood. Moreover, it is the long-continued and oft-repeated effect of minute germicidal odours such as those, that are most efficacious as microbic disease-preventers. The persistent effect of minute doses are both more efficacious and less dangerous than stronger fumes might be: as they neither irritate, inflame, or poison the lungs or body of the inhaler. So that, perhaps all unwittingly, the Hebrew High Priest and Priests, with their odoriferous incense and oil were not only ministering to the soul hygiene of the Hebrews, but were also materially aiding the Levitical Tabernacle cleaners in their more physical efforts to preserve the health of this vast crowded, sanitarily ignorant and hygienically untaught Hebrew community. They helped the judicious dieting, pure water, and untainted Desert air, so different from that of towns and even from that of many rural regions, and other favouring Heaven-supplied hygienic influences of the Hebrew camp, home routine, and environment, to make that favoured people as a body the healthiest community the world had ever seen: and their Jehovah-designed camp, especially its Tabernacle, models for all-time communities and for all people. Nor was the influence of the Tabernacle here spoken of the least important of the many items that contributed to produce this magnificent and monumental sanitary effect. Jehovah made His central temple the healthiest part of the entire camp; although it was often the most crowded and the busiest. Made it the disseminator over the congregation camped round it, not only of holiness, but also of hygiene. In legislating for the Hebrew camp the Almighty added the Tabernacle to promote the health of the Hebrew souls; as He had already made sanitary laws for their bodies. And in effecting this He adaptively and presciently made the inclusive ritualistic functions, namely

sacrifice, burnt offerings, incense, anointing oil, and other forms of oblation offered therein by the Priests, to minister to the sanitation of the complete and complex human being, body and soul. Nothing was omitted that could promote the Hebrew welfare, either for time or for eternity. Everything was arranged and legislation made both for here and hereafter. The whole method and machinery of this being so dove-tailed and interwoven and correlated with a precision and accuracy and a degree of medical acumen that cannot fail to excite admiration, that increases *pari passu* the deeper we study the subject.

Modern hygiene has now pretty well established the fact that except perhaps in the very highest and most rarefied regions, no surface air on the entire face of the globe, even the purest, is entirely free from pathogenic dust-particles, and that again from admixture with morbific microbes or their spores, usually microscopic and invisible to the naked eye. Also that the air of mountain tops, that is, far above the mass of humanity; and also that of desert regions, away from humankind, and like that in which the Hebrews lived during the Wanderings; are usually the freest from these, and therefore in this as in other respects the purest. And when we consider that no air can be too pure for human lungs, or too free from those disease producing particles that find an easy entrance into our bodies and blood, either through the skin, stomach or lungs; surely protective aid of the kind now alluded to, as given by the sacrificial programme of the Hebrews, could not fail to be very beneficent as well as welcome, had it been fully understood.

This atmosphere, in which the Hebrews were constantly more or less completely immersed; rendered deodorant and disinfected as already described; benefited the Hebrew camp and congregation, and especially the Priests and Levites in several important ways, and was both preventive and curative of disease. Thus:—

1. It prevented the growth and development of, and was even deadly to those many forms of microscopically minute animal and vegetable life. It was particularly so to those bacteria micrococci and other varieties which either cause or intensify the many severe contagious and infectious diseases that afflict and often decimate mankind. Neither could these microscopic forms of life nor their germs exist long in a specifically odoriferous atmosphere of this nature. Hence, mainly from this cause, the air of the Hebrew camp

was sanitary, that is health-preserving and disease-preventive.

2. The air of the Hebrew Tabernacle and camp, thus rendered fragrant by incense, holy oil, and other minor scents, was germicidal to those minute forms of life that may have already found an entrance, footing, and nidus in the lungs, blood, or tissues of any Israelite. By thus weakening, sterilizing, or killing the morbific microbe or its germs, it prevented its further development where it first located, by killing the incipient germs and still undeveloped colonies; and thus prevented their secondary spread elsewhere, either in the person by auto-infection, or to others, and thereby obviated the crudescence of active and open disease. The air of the camp, and especially that of the Court of the Tabernacle, was thus more than sanitary or preservative of health; it was also sanatory or healing, thus curative of disease, and a fit adjunct to aid other special remedies.

Modern experience, and not only the history of disease, but also the story of different trades and professions, furnish examples of this strangely protective and curative powers of the long-continued or frequent inhalation of artificially or naturally medicated air by the human lungs; the true rationale of which is only now beginning to be found out by microscopic and chemical research. Thus it is the pine or terebinthinate odours thrown off by some of the coniferous trees, which benefit the lungs and bodies of phthisical individuals by their slow but sure germicidal action on the bacilli that are surely but often more or less slowly consuming the sufferers lungs and thus sapping his life. So also it is the earlier inhalation of this air, medicated by Nature, which prevents the inception of that disease in sound lungs, by killing or sterilizing these or their germs that may be floating in the air; thereby rendering it baccilli and micrococci-free, or, as it is medically termed, aseptic. So also it is the earlier inhalation of this air, medicated by Nature, which prevents the inception of that disease in sound lungs by killing or by sterilizing these or their germs floating in the air; thereby rendering it baccilli-free, or, as it is medically termed, aseptic. In like manner cigar makers in florida are said to enjoy an immunity from yellow fever; which can only be ascribed to the constant inhalation of the germicidal fumes of Tobacco. This fact has been confirmed and extended by the recent researches of Tassinari; who found that tobacco-smoke delays the development of some of the most virulent of the disease-producing micro-organisms; for example, Spirillum Cholera Asiatica (Asiatic cholera germ),

Bacillus Anthracis (splenic-fever germ), Bacillus Typho-Abdominalis (typhoid germ), Bacillus Pneumoniæ (infectious pneumonia germ), Staphlycoccus Pyogenus Aureus, and Bacillus Prodigiosus. Other examples might be given of the beneficial sanitary and sanatory effect of the long continued inhalation of ordinary air medicated, even mildly, with other vegetable odours. And also of ærial medication with the vapours of inorganic substances such as burning sulphur. But these will suffice to illustrate the subject: and to draw a parallel. In like manner the originally pure and antiseptic air of the desert, contaminated and rendered impure by the bodily eliminations of the Hebrew congregation, was thus re-purified, disinfected by the germicidal odours of the Holy of Holies, its surroundings, and its attendants. The incense odour thus did for the air of the Tabernacle and its vicinity, as well as for that of the entire camp what terebinthinate odours do for many health resorts; and also for what the ozoniferous airs of many seaside places; and again what the germ-free upper atmospheres of Alpine regions do for the invalids who frequent them. It supplied a pure and aseptic or germ-free, that is healthy air for breathing purposes; that being one of the most urgent and important of all our bodily functions. It furnished air that was opposed to the reception and development of disease-producing bacteria; all of which are so apt to find a ready and ever open entrance by the gateway of the never-ceasing respiratory apparatus and function.

3. That the sweet incense (Ex. xxx. 7), incense of spices (Ex. xxxv. 28); sweet smelling or pure incense of sweet spices (Ex. xxxvii. 29), as it was variously named; which the Priest burnt morning and evening on the Altar of Incense in the Holy Place (Ex. xxxi. 11); a composition (Ex. xxx. 34) or compound of frankincense and other gums or spices (Ex. xxx. 34-6) was not only a very fragrant and agreeable perfume, and deodorant; but also hygienic and an air purifier, because germicidal, we may infer from an analysis of the composition of its four ingredients as given by Moses (Ex. xxx. 36), as the perfumes communicated by Jehovah on Mount Sinai; namely:—*a*, Frankincense; *b*, stacte or storax; *c*, onycha; *d*, galbanum; in equal proportion 70 manehs of each. To this list we may also add that of the seven other ingredients quoted by Iarchi and the Jewish doctors, namely, *e*, myrrh; *f*, cassia; *g*, spikenard; *h*, saffron; *k*, costus; *l*, cinnamon; *m*, sweet bark, or smoke-raiser herb, soda, salt of amber of Jordan; as these are all of a more or less similar nature.

a Frankincense (Ex. xxx. 34), Olibanum or Libanum; the Lebonah of the Hebrews; obtained in Arabia, the Judaic Mountains, India, and Africa, is a vegetable gum-resin, brittle, glittering, and very odorous. It is an excretion either from the Arbor Thuris tree or the Juniperus Lycia. But its source is uncertain, as others aver it is either the Mastic, Terebinthus, Thuia Occidentalis (American Arbor Vitæ or Frankincense tree), Boswellia Serrata, or the Amyris Gileadensis. Frankincense is sometimes called incense (Ps. lx. 6). It burns freely, and thus gives forth its odour; and is still used for fumigation as well as for perfuming sick rooms. This is the incense employed in the rites of the Roman and the Greek churches. Modern commercial frankincense, however, is totally different, though one of the fragrant gum-yielding family, being an exudation from the Pinus Abies or Norway Spruce Pine; and resembles Burgundy Pitch. The meat (meal) offering consisted of frankincense with meal (Lev. vi. 14).

b Stacte, or the purest liquid myrrh, has been averred to be either the abundant gum, gum resin, or Balsam of the Storax shrub or tree (Styrax Officinalis); or that of the myrrh tree (Balsamodendron Myrrha); or prepared from the bark of the Liquidamber Orientale of Asia Minor, Syria, and the Levant. According to Professor Bentley the botanical source of the stacte of the early incense is unknown. For no drug of modern times has been identified with it. However, that now found in Asiatic Turkey is a very powerful and fragrant balsam, having a sweet, pleasant smell: and when burning yields a pleasant odour of benzoic acid, that makes it still much used for incense in churches. It is allied to the well-known Balsams of Peru and Tolu.

c Onycha, is the Operculum or lid of several species of Strombus shell (a gasteropodous mollusk); which has a sweet aromatic odour when burnt, something like castoreum; and hence is prized as a perfume. The Strombus

resembles the Purpura found in the nard-producing lakes of India.

d Galbanum. The plant or tree from which this gum-resin, possessing a strong repressive disagreeable smell, is obtained as its sap, is not easily determined. But probably it is one of the Umbelliferæ from the Levant, Syria, or India: and may have been added to the sacred incense to enable the perfume to retain its fragrance longer.

e Myrrh (Hebrew Mor or Mur). There is also much doubt as to the nature of this fragrant gum-resin; as the name has been applied to different resinous productions of strong odour, and obtained from the wood and bark. Probably it is from the Balsamodendron Myrrha (of the Amyridacea, Myrrh, or Frankincense order). This was also one of the ingredients of the Oil of Holy Ointment (Esth. ii. 12). It was also one of the substances used in the purification of women (Ps. xlv. 8; Prov. vii. 17). It was also used for embalming. And was one of the perfumes used by Nicodemus for the preparation of our Lord's body, the other being aloes (John xix. 39-40); not the medicinal aloes, but the highly scented wood of the Aquilaria Agallochum. Myrrh has a fragrant peculiar odour, and contains a volatile oil called myrrhol. Myrrh is first mentioned in Genesis; and hence must have been in use for over 3,500 years.

f Cassia is the rhind or bark of an aromatic plant (Cin. Cassia). It was an ingredient both of the Hebrew Incense and Holy Oil. It was used with myrrh and aloes to scent garments (Ps. xlv. 8). It yields the fragrant and medicinal Cassia Oil; not at all dissimilar from the Oil of Cinnamon.

g Spikenard or Nard, is derived from an herb of the order Valerianacea, and is a strongly-scented volatile oil, still highly esteemed in the East as a perfume; but not liked by Europeans. It is still chiefly used for incense.

h Saffron; consists of the stigmas and styles of the flowers of a bulb, the Crocus Satious or

Saffron Crocus (Karcom of the Bible). The bulb is one of the Iridaceæ. Saffron is still much used in the East for colouring.

k Costus is the root of a plant (Aplotaxis Lappa or Auchlandia Costus); one of the Compositæ. It is said by Falconer to be the Costus of the Ancients. It is still used, chiefly as a perfume, and for burning as incense.

l Cinnamon is the aromatic rind or bark of the Laurus Cinnamomum tree, one of the Lauraceæ. The oil of the ripe fruit is used in the composition of incense; and diffuses a most delightful scent when burning. This was also one of the ingredients of the Holy Oil (Ex. xxx. 23). It is also termed spicy cinnamon (Ex. xxx. 23). And, later on, it was used as a perfume for the bed by boiling (Prov. vii. 17).

m Sweet bark; an aromatic cane or reed from which an aromatic was extracted.

These perfumes, like every other accessory and supply for the Tabernacle, as for example the olive oil for the lamp (Ex. xxvii. 21) had to be perfectly "pure." No adulteration or inferiority was permitted. Cost was not to be considered. A store of the incense made therefrom was constantly kept in the Tabernacle and specially set apart for the services of the sanctuary. It was not to be used for any other purpose; nor was it lawful to imitate it. Its desecration incurred death.

These remarks are equally applicable to the *Holy Anointing Oil*. Its ingredients made it a very fragrant perfume (Ex. xxxv. 28; xxxvii. 29). These were four in number, as follows:—

Myrrh	2 parts	These were compounded after the art of the perfumer, with sufficient olive oil to give the mixture consistence (Ex. xxx. 23-26).
Cassia	2 „	
Cinnamon	1 „	
Sweet Cane	1 „	
Olive Oil	as required	

This, like the incense, was not to be imitated; never used at home; used by the Priests alone; and never on any other altar. A prodigious quantity was made on one occasion, namely 750 ounces of solids and 5 quarters of oil. The whole had to be of the purest kind; no adulteration or inferior articles being admissable. The ingredients consisted of:—

n Sweet Cinnamon, one of the reputed later additions to the Holy Incense (*l*); and con-

taining a highly odorous and volatile oil.

o Sweet Calamus, or Sweet-flag; the rhizome of an Indian and Arabian plant, the Calamus Odoratus or Acorus Calamus; order Acoraceæ; which contains a volatile oil obtained by distillation, used for scenting snuff and preparing aromatic vinegar. The Turks at the present day employ the candied Rhizomes as a preventive against contagion. in India the Rhizome is occasionally used as an insectifugue and insecticide, especially for fleas.

p Cassia; which contains a very volatile odoriferous oil; and is one of the ingredients of the sweet incense (*f*).

q Sweet Cane or Calamus.

r Olive Oil; has no special perfume, and was only used here as an excipient, to give the oil or ointment consistence.

Besides these different ingredients of the two major medicaments used in the ritual of the Hebrew Tabernacle, namely, the Holy Incense and the Holy Anointing Oil; there were certain other deodorants and disinfectants that have already had brief mention, because they held a subordinate place in the sanitation of the Tabernacle; but that nevertheless added more or less often, and in a greater or less degree, their quota to the general fund of air-perfuming and purifying, disease-preventing, and health and life preserving appliances. That is, they aided the major hygienic or sanitary influences already spoken of, namely, that of the incense burning and oil anointing, at work amongst the Hebrew people. These were mainly, like the former, of a vegetable nature; and also, like them, derived their beneficent influences from the presence of essential oils, gums, or balsams. The adjuncts now spoken of as aiding more or less, either directly or indirectly, to make the atmosphere of the Tabernacle, as well as its hangings, furniture, the clothing of the Priests and Levites, aseptic and free from disease germs, and therefore healthy, were five in number; namely:—1, cedar; 2, aloe; 3, hyssop; 4, water of purification; 5, salt. These we must consider seriatim.

1. Cedar; Cedar Wood; Lesser Cedar; or Juniper. This was the wood either of a small juniper; either the Juniperus Sabinae; or the Oxycedrus or Phoenician Juniper; or the Pinus Cedrus or Deodara. All of these have at all times or when burnt a fragrant aromatic terebinthinate odour. But it may also include other Coniferæ; *e.g.*, the fir, cypress, larch, pine,

yew, juniper, sanderach; all of which are more or less aromatic, fragrant, and disinfectant, from the same cause: namely, the presence of the contained oil of cedar in the wood, fruit, and cones; regarding the antiseptic properties of which Vitruvius speaks, as he does also of juniper. Hence, doubtless why this special kind of wood was ordered by the Mosaic law to be used in ceremonial purification, as in Lev. xiv. 4, for cleansing the leper: when cedar with scarlet and hyssop were dipped with the living bird in the blood of the sacrificed bird. And again where, combined with hyssop and scarlet, cedar was cast into the midst of the burning heifer to help to make the ashes employed to make the water of purification (Numb. xix. 6). Both of these ceremonial processes were doubtless mainly typical. But assuredly they were also secondarily and in no small measure sanitary and disinfectant; that is health preserving. Cedar wood was also used as perfume, especially at funerals; a judicious precaution of a sanitary tendency. It is a noteworthy fact in an enquiry like this, that it is the odour of the essential oil of these fragrant coniferous trees, which, disseminated in the air and constantly breathed, makes certain places, such as Florida, Bournemouth, &c., reliably favourite resorts for phthisis. Can there be a doubt, therefore, that the occasional and often frequent inhalation of this piny odour of the Hebrew Tabernacle and its ritual was equally sanitary and health-giving, so far as it went, to the Hebrews of the Wanderings, and, above all, made the Priests and Levites the healthiest of them all?

2. Aloe or Lign-aloe (Numb. xxiv. 6); is the Aguilaria Agallochum tree, which is highly fragrant and odoriferous from the presence of an oil or resin in the trunk. The flower of one species also, is highly fragrant. The wood and resin of the aloe are used in the East for perfuming garments and rooms. The resin is also given internally as a cordial in fainting and epileptic fits.

3. Hyssop; (êzôb; or Z'atar of the Arabs). Owing to great differences of opinion the true nature of this is difficult to determine. Many odoriferous plants have been identified with this name; such as mint, fragrant marjoram, thyme, southernwood, rosemary, French lavender, wall-rue, and caper plant. Most probably, however, it was the Origanum Ægyptiacum of Egypt,

or the Origanum Syriacum Pœstu. It was detergent (cleansing) and fragrant with the odour of thyme, and a hot pungent taste, from the presence of a strong essential oil. Hence its employment in the purificatory services of the early Hebrew Church. In this, however, probably none of its medicinal properties were called into use, except its odour, which was obviously bactericidal. It was used in the Hebrew ritual on three occasions; namely—

a A bunch of hyssop dipped, first in water of purification, then in the blood of the Paschal Lamb, was taken to strike and sprinkle the lintel and two side posts of the door of each house or tent; of course once a year. No doubt this act was mainly typical. But the agent doubtless carried and spread over and around each house a health-giving, hygienic, and disinfectant odour of no small import and aid, seeing how general it was over the entire camp (Ex. xii. 22).

b Mixed with cedar and scarlet, hyssop was employed, according to the Mosaic ritual, in the cleansing of lepers. These three articles, with the second bird brought for a purification service, were dipped in the blood of the first or slain bird. This ceremony was no doubt mainly typical. Still, was it not also largely hygienic and disinfectant; by making the sprinkler so largely aromatic and therefore disease-preventive, not only to the sacrificing patient but also to others standing by. The process must have been pretty often required; and the odour in question frequently inhaled, to the hygienic benefit of many (Lev. xiv. 4).

c Mixed with cedar and scarlet, hyssop was also used in the sacrifice of the red heifer; when these three were together cast into the midst of the burning sacrifice; the ashes of which were then collected and carefully preserved for making the water of purification (Numb. xix. 6). This ceremony was mainly typical; but it was also and secondarily fumigatory, odoriferous, and hygienic to all who were near by at the time. As corroborative of this view it should be noted that when hyssop, scarlet and cedar wood are "offered"

in disease it is only for the infectious types, *e.g.*, leprosy (Table 9).

d Hyssop was also used for sprinkling the water of purification on tents, persons, vessels, and all else that had been made ceremonially unclean: as for example by the presence of a dead body, or by having touched a bone, a slain person, dead body, or grave. These occasions must have happened pretty often; and therefore many people would be thereby compelled to inhale the hyssop odour of bactericidal and hygienic utility: the secondary utilitarian and sanitary purpose being thus grafted on the main, primary, or typical aim of that special law (Numb. xix. 18).

4. *The Water of Purification or of Separation* (Numb. viii. 7; xix. 6), for the Levites, was formed by mixing in spring water the ashes of a red heifer, without spot or blemish, and that had never been yoked (Numb. xix. 2). This was offered as a sacrifice; and during its cremation was mixed with cedar wood, hyssop, and scarlet, all of which were cast into the sacrificial flames. The ashes of the whole were then collected and kept for use, by admixture with spring water. These ashes would necessarily contain much potash, and thus be strongly alkaline. This process, based on strictly scientific principles, and especially the volatilization of the cedar and hyssop odours, would add its quota of aromatic to promote the disinfection of all things and persons close by; and would thus aid the purification of the air of the Tabernacle, the Priests', Levites', and people's clothing, the hangings and furniture of the Tabernacle, and all connected therewith, sanitary and health-preserving. And as this intensely alkaline water must have been in very frequent requisition, seeing that every death that occurred rendered those who dressed, touched, carried, or buried the dead, ceremonially unclean: the sanitary and disinfecting aid thus added to the sum total from other sources already spoken of, must have been considerable. For, as with these, so this aroma was not purely and solely typical; but also had an underlying stratum and intention that was decidedly sanitary and microbicidal.

5. Salt. Everyone of the aromatics used in the service of the Hebrew Tabernacle, except this well-known mineral, and the comparatively little known onycha,

of animal origin, were of vegetable nature. Salt was even more indispensable to the Hebrews than to us; both for their daily life, and their ritual. To eat of a person's salt in the East, binds the eater to indissoluble alliance and sacred obligations of fidelity. Hence why it is enjoined in the Hebrew offerings to God (Lev. ii. 13; Ezek. xliii. 24). Infants were rubbed with salt for symbolic purposes, combined with sanitary considerations. Salt is a bactericide and germicide; that is, it is disinfectant. And the chief uses to which it was thus applied by the Hebrews for this preservative purpose, and for preventing decomposition of animal and vegetable matter in its different forms, may be summarized thus. Although that people were doubtless only aware of the household, the agricultural, and the medical facts, about to be mentioned, without being able to satisfactorily explain them, as we can.

a It was one of the most appetising and universally employed of condiments for man (Job. vi. 6), and for beast (Is. xxx. 24); and hence one of the most essential articles of diet.

b It was then, as it is now opposed to corruption, and hence one of the most valuable of purifying antiseptics and also food preservatives, especially in warm climates, where putrefaction is both early, speedy, and great.

c The early Hebrews used salt to fertilize the soil, when this was of an inferior nature. Then it possibly acted mainly by destroying minute alien animal life, especially insects.

d In its more concentrated form, salt was used to sterilize and render the land infertile by destroying both minute animal and vegetable life, and their germs (Deut. xxix. 23; Zeph. ii. 9; Job xxxix. 6; Jer. xvii. 6; Judges ix. 45).

e It was also used by the Hebrews to hasten the decomposition of manure (Mat. v. 13; Luke xiv. 35); in which it doubtless acted chemically; ammonia setting free the chlorine of the salt.

f It accompanied various altar offerings; and entered largely into the Hebrew religious services (Lev. ii. 13). Thrown on the burning offerings its chlorine would be set free; and this is one of the most potent and

searching of the known gaseous disinfectants. It would thus add its quota to the desired anti-contagiousness of the atmosphere.

Certain facts and points should be specially noted regarding the different pharmaceutical ingredients of the Holy Incense, eleven in number; also of the first three of those in the Holy Oil; and lastly of the five subordinate medicinals now spoken of, making its total of nineteen medicaments all more or less aromatic and disinfectant. These points are:—

1. That they are all natives of South-western Asia, *i.e.*, of the scene of the forty years' wanderings; or its vicinity; and therefore easily obtained.
2. That they all belong to the vegetable kingdom: while only one, namely, onycha, is animal; and none is mineral except salt.
3. That they are all volatile, and very odoriferous when subjected to heat; that is they are easily diffused and thereby mixed with the atmospheric air.
4. That they all, except onycha and salt, consist either of:
   - *a* *Barks* (like cinnamon, cassia, and spikenard), containing a very fragrant, volatile, essential oil.
   - *b* *Balsams* (like stacte), odorous, and containing a resin, essential oil and fragrant benzoic acid.
   - *c* *Gum-resins* (like frankincense, myrrh, galbanum), which are odorous and contain a volatile oil, gum, or resin.
   - *d* *Herbs* (spikenard), which contains a strong, scented, volatile oil.
   - *e* *Stigmas* and *styles* of a bulb (saffron), containing colouring matter.
   - *f* *Root* (costus), containing a fragrant perfume.
   - *g* *Rhizome* (calamus), containing an aromatic volatile oil.
5. That they belong to or are derived from one or other of the following botanical natural orders; which are widely scattered and plentiful; therefore both cheap and easily procurable all over the world in one form or another for disinfecting and sanitary purposes; and therefore universally available.
   - *a* *Amyridaceæ* (stacte, frankincense, myrrh). The plants, shrubs, and trees of this order consist of about 60 species; almost universally characterized by an abundance of fragrant resinous or gum-resinous juice. For

example, the myrrh (mor or mur) of the Holy Incense, first mentioned in Gen. xxxvii. 25, and thus in use for more than 3,500 years. Balm of Gilead or Mecca, the balm of the Old Testament is another product. So is olibanum, the incense or frankincense of the Bible. Also elemē or black damman. Also Mexican lign-aloes, which yields a volatile oil, &c. All of these are natives of tropical Africa and India.

b *Umbelliferæ* (Galbanum). Some divisions of this order yield aromatic seeds, *e.g.*, dill, carraway, coriander, cinnamon, fennel, anise. Others yield well-known gum-resins, *e.g.*, galbanum of the Holy Incense, oppopanax, sagapenum, ammoniac. The root of ammoniacum is now used in the Parsee fire temples of India, as incense. The order inhabits Syria and Persia.

c *Lauracea* or Laurel Order (cinnamon, cassia); consists of aromatic trees or shrubs, of which there are about 450 species; almost all of which possess aromatic properties, due to the presence of volatile oils. Cassia and cinnamon of the Holy Incense and Oil; as well as camphor, sweet bay, and sassafras are all derived from this order. Lauraceæ plants are chiefly tropical.

d *Valerianaceæ* (Spikenard) or Valerian Order; are herbs, of which there are 180 species; chiefly remarkable for the presence of a strong-scented volatile oil; some of which are still highly esteemed in the East as perfumes, *e.g.*, nard or spikenard of the Holy Incense, and ancient Hebrews and Greeks; much esteemed in India as a perfume; and in some districts as Leh, chiefly used for incense.

e Iridaceæ (saffron), the Iris or Corn-flag Order; which embraces the saffron of the Holy Incense; includes 560 species of herbs of both temperate and warm climates. Some of these have fragrant rhizomes, *e.g.*, Orris root, that possess a volatile odour and are chiefly used in perfumery.

f Compositæ (Costus) or Sweet-flag Order; includes herbs and shrubs, of which there are

95,000 species; universally distributed; and many of which contain a volatile aromatic oil. It includes the Costus of the Holy Incense and of the Ancients; a native of Cachmere, chiefly used as a perfume and for incense burning. Other species yield a kind of camphor for perfuming, or as a volatile oil largely used for burning. It also includes dandelion, chicory, Jerusalem artichokes, absinth, all more or less aromatic.

g *Acoraceæ* (Calamus) or Sweet-flag Order.

h *Coniferæ* (Cedar), or Pine Order; abundant everywhere; consists largely of resinous trees containing an oleo-resin or turpentine composed of volatile oil and resin. From this order we obtain not only the cedar of the Hebrew Tabernacle; but also Burgundy Pitch, Thus, Canada Balsam, Balm of Gilead, Strasburg Turpentine, Kawrie Gum, Australian Dammar, Hungarian Balsam, common Frankincense, Oil of Juniper, Wood Tar, Creosote, Huile de Cade, Oil of Savin, &c.

k *Aquilariaceæ* (Lign Aloes); which are all of tropical and Asiatic origin. This order includes the Aloes Wood, the Ahalim and Ahaloth of the Old Testament.

l Capparidaceæ (Hyssop) or Caper Order; tropical and sub-tropical plants, herbs, or shrubs, which are pungent and stimulant.

6. All of these medicaments, of vegetable origin, contain a very strong, fragrant and clinging odour. This perfume is derived in most of them from the presence of a penetrating, volatile, essential oil, rapidly diffusible by heat, and called thus because it is the *essential* or chief element of the drug. These oils are always deodorant, often disinfectant, and usually both. Hence their utility to the sanitarian, surgeon and physician.

7. The universality of these or allied medicaments or plants yielding similar, perhaps equal or even more potent, oils, balsams, or essences of medicinal or sanitary virtue is also a very noteworthy fact: as it implies that they are open and available by all mankind.

8. The saffron of the Holy Incense was no doubt added, according to the art of the perfumer or apothecary, to give this a pleasing colour; and for that purpose only. And the olive oil of the Holy Ointment to give this

proper consistence. Neither of these had any claim to sanitary virtue.

9. The first four ingredients of the Holy Incense, that is those mentioned by Moses, are the strongest of all of these medicaments and evidently the most important from a sanitary and bactericidal standpoint. Doubtless the remainder were subsequently added, and are post-Mosaic.

An important point in the study of the incense burning and oil anointing of the Hebrew ritual seems to be that it emphasizes and suggests the question whether medical experimenters and enquirers have not neglected too much this Biblical sanitary hint and followed too closely the track of research into mineralo-chemical bactericides, instead of investigating vital or organic chemistry, and especially those of plant and vegetable origin, like those here pointed out in the Mosaic hygiene, doubtless purposely; namely, oils, balsams, and gum-resins, like those contained in the incense and the ointment of the Hebrew ritual. Scientists are beginning to find out that the vegetable world and its products may furnish us with stronger, safer, and better germicides and bactericides than the mineral kingdom which has hitherto, at least by secular medicine, chiefly ransacked for this purpose. And that some of the most potent of the former are the very ones selected by Jehovah for the ritualistic incense and ointment and Tabernacle use. And it can scarcely be doubted that the whole arrangement, the selection of medicaments, and their practical sanitary application, were as carefully thought out and put into actual operation by Jehovah, the all-wise and supreme sanitarian; as was all else connected with the Hebrew Tabernacle, camp, and people.

It is specially worthy of notice regarding these points, that the greatest chemico-pathological discovery and advance of modern times lies in this very direction. This includes the discovery of the previously unknown yet universal and teeming world of microscopic vegetable life; many forms of which are innocuous to Man; while others are directly or indirectly helpful to human life; and others again intensely morbific and detrimental to the human race. And shortly after this discovery came another that is slowly but surely dawning; namely, that these morbific species, and their still more microscopic germs, may be often, and ultimately perhaps always rendered sterile and impotent or killed altogether, and thereby rendered innocuous to Man by various agents; some of a mineral, others of an animal, and others of a vegetable nature. These are called germicides or microbicides (germ or microbe killers). The chief disadvantage of the first or mineral class, such as corrosive sublimate solutions, fumes of sulphurous acid, chlorine,

&c., lies in the difficulty of control and chance of injuring the patient while fighting his invisible foes. Hence it is why therapeutists, pathologists, and bacteriologists have been searching for others which are safer and freer from this danger. The animal world is too unstable to supply these. Therefore investigations have been mainly made in the vegetable world. It has been found that sometimes one form of micro-organism will destroy others; and this fact has already been utilized both in medicine, surgery, and sanitation. But this subject is beyond the present enquiry. This is mainly in the field of vegeto-chemical microbicides. And the desired aim and scope of this may be indicated by mentioning the employment of the vapour of eucalyptus oil to prevent or cure influenza by nasal and pulmonary inhalation. Also the inhaled vapour and the tonsil-applied oil of mentha-piperita (peppermint) in diphtheria. The inhalation of pumilio-pine vapour for the cure or alleviation of consumption (phthisis). The odour of the oil of cinnamon (and therefore of its close ally, cassia), two of the ingredients in the incense and oil of the Hebrew Tabernacle, has also been lately extolled as one of the most potent of germicides; surpassing even corrosive sublimate. The many coal-tar derivatives, among which may be mentioned carbolic acid, creosote, &c., are also among the most potent and frequently applied of the vegetable germicides.

It is curious to note this recent departure from the primary line of mineral to that of vegetable research: and the unwitting entrance by recent secular science into the very ancient Mosaic and Biblical field of over three thousand years ago. Still it cannot be doubted that the divergence is a wise one. The vegetable kingdom, on which human life and health so largely depend; and that supplies not only health-giving food and luxuries; but also develops many human poisons and morbific agents, not a few in microbic size and forms; such as the malarious varieties; likewise supplies counteracting substances to oppose or destroy these. It is from the vegetable world that we derive the largest number and the most powerful medicinal remedies; such as narcotics, authelmintics, cathartics, errhines, diaphoretics, diuretics, emmenagogues, tonics, antispasmodics, astringents, stimulants, &c.; and therefore why not our most trusted microbicides, as did the Divine Sanitarian? Would it not be wise, as it assuredly would not be derogatory to follow His leading light? Assuredly the volatile odours, perfumes, and oils, gums, gum-resins, and balsams, and other vegetable products with which Nature has so lavishly supplied mankind all over the world, especially in the densely peopled tropic and temperate zones; were not bestowed solely to disseminate refreshing smells and scents; but were also created for the far

more important and beneficent hygienic purpose, namely, that of acting as germicides and disinfectants for the amelioration and stamping out of the large and rapidly increasing list of microbe-generated ailments that afflict man everywhere; and which are no doubt increasing in numbers *pari passu* as the race multiplies and spreads. These unseen and penetrative perfumes act as poisons on the equally invisible micro-organisms. Recent research has shewn the advantage and efficacy as bactericides of the old drugs of the Pentateuch. In this direction chemists and pathologists have an almost new, little trodden, but very fertile field, one which is noble and highly utilitarian, in which to direct their laudable ambition and praiseworthy efforts in a field sure to yield ample fruit; and results satisfactory not only to themselves, but also to their disease-stricken fellow creatures. Because their findings have this most important advantage, that they may be safely, yet effectively, used on the human subject for this bactericidal purpose without endangering life, which is not the case with some of the mineral germicides, and notably corrosive sublimate. This selection by Jehovah of non-poisonous vegetable germicides in preference to more dangerous and it may be deadly mineral ones, is a noticeable feature in the Bible hygiene; and is surely a lead worth following. And it is a fact that seems to be closely allied to the recent discovery of the utility yet harmlessness of the animal extracts, now frequently employed both for the prevention and the cure of disease. For example, Koch's for tuberculosis; Loefflers, for diphtheria, &c.; a field only yet being opened up, though doubtless destined to yield startling and beneficent results, both preventive and curative of disease. The teaching of the Bible; and God's laws of over three thousand years ago, thus distinctly foreshadow the great modern discovery of germicides and their uses, both in health as preventives of disease, and in disease as aids to restore health.

The Divine Wisdom and Sanitary Prescience doubtless selected the two best antiseptic and microbicidal essences and oils, namely cinnamon and cassia, for the Holy Incense and Oil. Both were easily obtained at that day and in that region. And, curiously enough, modern research is finding oil of cinnamon one of the most potent of the germicides. The volatile oils which Nature so lavishly supplies in most habitable parts of the globe; and many of which may prove to be potent bactericides, are a long list. And among others this includes balsams of Peru and Tolu, benzoin, juniper, peppermint, spearmint, rosemary, lemon, cinnamon, cloves, &c., &c. Towards this point, and the consummation of hygienic perfection, the Holy Scriptures thus once again forestals human thought and effort. Nor ought we to despise or ignore the far-seeing and still pioneer

leading and light and practical example which the Pentateuch, the Mosaic Code, and the Forty Years' Wanderings amply supply?

From the same Bible narrative of over 3,000 years ago, which shews that scriptural has long been and even yet is far in advance of human medical knowledge, and has antedated sanitary science by many centuries; we may also glean another important fact, namely, that the ingredients for the incense oil and other ritualistic purposes were chosen, not by Moses but by Jehovah (Ex. xxx. 22). Was this superlatively wise selection, even to modern minds, of odoriferous medicinals, mainly accidental, and based only or mainly, because, 1st, they were indigenous to the country or region; therefore easily procured at reasonable cost; and, 2nd, because they were highly fragrant, diffusible, pleasant when burnt, and the best that could be selected for making an odoriferous "sweet-smelling savour" for Jehovah and the congregation. Or, did the Divinity choose them, 3rd, with His all-knowing wisdom and prescience, familiar not only with everyone of His own creations, and fully aware not alone of the existence and virulence of the microscopic world of microbes and the diseases that many of them produce: but also of the anti-microbic bactericidal properties of the selected plants, and the odours they produce; probably to be yet found, when more fully investigated, the most potent and the best. Scripture has thus been holding out for over 3,000 years to mankind certain neglected hints, viz., *a*, of the existence of an ocularly unseen world of microbes; *b*, that many of these are alarmingly morbific; *c*, that these may be either killed or rendered innocuous out of the body; *d*, that their morbific consequences may also be combated; and *e*, how this may best be done. It is thus with this as it is with all else that is included in the magnificent and prescient multiple code and revelation known as the "Mosaic law." Research into this ancient hygienic bye-path of Scripture knowledge thus shews that in antisepsis and the prevention of disease by the aid of microbicidal inhalants; the Jehovistic antedates human practice by over 3,000 years: shewing who it is that best "teacheth man" (Ps. xciii. 10), when willing to receive His offered written advice; but who leaves them in darkness for centuries, as in the present instance, if they neglect this. Moreover, in this as in most other departments of human instruction, we can perceive how "very deep" are the thoughts (Ps. xcii. 5), and how "broad" (Ps. cxix. 96) and comprehensive are the commands and the laws of Him to whom all science, philosophy, and knowledge are an open book, because they, like all other existing things, are His handiwork.

Moreover, the man who acted as the Almighty's mouth-

piece and agent in this sanitary bequest; and in whose sight he was but a babe in knowledge, notwithstanding his Heaven-devised and God-aided instruction; but who no doubt felt deeply honoured by being so instructed by this august preceptor, in one department of knowledge after another until the end of the allotted course was at length reached: this, one of the greatest and the most learned of all the Bible worthies, yet both the meekest and most modest, never once alludes to himself as aught else than a secondary agent. He takes no credit for, nor speaks of it or suggests or implies that the work is his; but receives records and ascribes the invaluable and suggestive hygiene of the Hebrew Tabernacle, fully and freely to God; and gives the sole credit to its Divine Author and Deviser. For every new addition to the code, chapter after chapter, begins thus, "And the Lord spake unto Moses saying" (Ex. xxx. 22). Thus, as with all else, Moses does not claim to be the author of this beautiful beneficent, prescient, and supremely wise medical philosophy; which includes the hygienic or sanitary code, the delivery of which upwards of two millions of Hebrews witnessed at Mount Sinai and in the Tabernacle thereby testifying to its authenticity, its age, and its Divinity. In this modesty Moses resembles the leading minds of all ages. Like them, he was content to sit and learn at the feet of Him who both made and knows all things; and to reverently receive, admire, and administer sanitary laws and multiform hints that he himself could fully appreciate and for which, had he himself created them, he would have deserved and received earthly immortality.

This study of ancient Biblical medical science is exceedingly interesting in the light of modern science; and impels us to think of its deep import and evident intention; and to marvel at and deplore its long neglect. As with the major part of the Mosaic hygienic code, subsequently delivered from the Holy of Holies at the foot of Mount Sinai, so with the hygiene of the Tabernacle, evidently deemed of still greater importance from the simple fact of its being delivered, as was the chief part of the Mosaic law, the Decalogue, from Mount Sinai: so no doubt the unusually comprehensive and receptive mind of Moses received this, a first instalment of a new medical revelation, with avidity and with ardour, perceiving its full depth and significance over that of the entire range of the medical men of that day, and probably more deeply outlined to his Heaven-instructed and Heaven-guided intellect, than he was permitted to put on record, like Paul at a future day (2 Cor. xii. 4). But assuredly if Moses had left us a synopsis of the Mosaic law such as those we find in different encyclopœdias, his medical acumen would have included, and would not have left out, as mankind has done, this most important portion of that code,

namely, its hygienic section, and the sanitary science of the Hebrew Tabernacle.

It would have been deemed a great intellectual achievement on the part of human moralists like Plato, Socrates, or Confucius, to have framed a spiritual, moral, and social code, like the Hebrew Decalogue; even if they had possessed the necessary genius. It would have been deemed a great intellectual feat for human philosophers, scientists, or philanthropists to have framed criminal, poor, political, and other laws like those other sections of the Mosaic code. So, likewise, it would have been deemed a token of marvellous intellectual power, even for Moses, though learned in all the medical wisdom of Egypt, to have framed by his own efforts a health code such as that which goes by his name. But of this merit, so distinctly disclaimed, men cannot consider it a slight effort on the part of the Divine All-wisdom, and All-knowing and All-seeing, to frame a code so perfect in every one of the sub-sections of hygienic science; and also in the complex hygiene of the camp, and especially that of the Tabernacle. These are one and all to be regarded, admired, and praised, and accepted as incontestible proofs of God's forgiving care for a race of beings who, from a human standpoint, although not from a heavenly one, had rebelled against their Maker, disobeyed Him, cast off His allegiance, practically ignored His existence, and therefore so little deserved all His fatherly trouble and forethought.

It is far more an ecclesiastical than a medical question, and is thus not within the province of these pages to discuss the theological or ritualistic aspects of incense-burning in churches: or to attempt to decide whether or not it is appropriate or necessary for the Divine worship of the present day. But, from a purely sanitary point of view, the diffusion of bactericidal odours of this kind to be inhaled for a considerable time by the large audiences of churches, as well as by those of other assemblies, such as theatres, lecture, concert rooms, &c., is not only innocuous, but highly sanitary, and especially so as a preventive of the inception and spread of concealed, contagious, and infectious diseases a large and very deadly class of the many different and formidable ailments that everywhere and in all ages have carried off our sinning, and therefore disease-stricken race.

In the special rainbow to which Noah's attention was specially directed 1,500 years before the Hebrew Tabernacle was first erected; and its incense-burning begun, the Almighty Wisdom hid the germ of two great and important physico-chemical secrets; namely, those of the spectrum and spectrum-analysis; the latter a magnificent yet simple mode of discovering and bringing a knowledge of the infinitely distant down to

earth and the level of human observation. So also in this incense-burning and the lavish use of bactericidal scents in the Hebrew ritual, Jehovah enshrined another great pathological and therapeutic puzzle for the medical mind of Man to discover; in which the infinitely minute morbific vegetable forms of the microscopic world that teem above, around, and even within us, are kept in control, sterilized, and killed; human health thereby promoted, longevity increased, and life saved. It is only within the past thirty years, and not till the advent of Frauenhofer, Pasteur, Koch, Lister, and various other scientists, medical and otherwise, all working independently, yet convergently, that these secrets, the physico-chemical of the rainbow and the pathologico-therapeutic of the incense-burning, have been solved.

Those who consider the Holy Scriptures solely a religious and theological, and in no sense a medical book, because they forget its encyclopœdic and educational nature and import; are apt to spiritualize all they find therein; and to think that this, the last of the sanitary agents employed in the Hebrew Tabernacle, namely, the incense burning that we have described as disinfective, is wholly typical and unconnected with body health. Practical medical ideas however will see that underneath and behind all this emblematic teaching there is much that has another distinct yet beneficent object: and that to the former, which aims at promoting the hygiene and health of the spiritual man, is superadded something else calculated to aid the physical hygiene of the human body. The main object of the cremation and resulting volatilization by heat of these odoriferous vegetable productions that formed the incense and oil of the Hebrew ritual, was religious, symbolic, and typical; and was meant to waft upward with the prayers of the Priests and people a sweet-smelling savour to the Divine prayer-hearer and prayer-answered Jehovah. Still, though the emblem was soul soothing, healing and sanitary; unquestionably a most important secondary hygienic object underlay this. Nor were these odours meant only to disseminate a pleasant smell-covering perfume to cloak the odour of burning flesh and wood: but for a secondary, deeper, clearly antiseptic or distinctly disinfectant aim; in other words, for a special and important sanitary purpose. This selection and peculiar application of special drugs and medicaments for incense-burning and ointment elaboration was not therefore purely accidental, viewed from a medical standpoint. These two anticipative and educational functions of the Hebrew ritual really involved the rudimentary and base fact of our modern antiseptic system. And it foreshadows a most valuable medical, surgical, obstetric, and sanitary discovery; a discovery which is curative as well as preventive of disease, and

that has budded and blossomed only within the past quarter of a century; although during that time it has developed into a great and beneficent tree for the health and healing of the nations. The incense-laden atmosphere which the Priests and Levites habitually, and the Hebrew laity frequently breathed in and around the Tabernacle, closely resembled the pine-laden atmospheres to which persons afflicted or threatened with phthisis and other ailments are now sent: and that of the artificially pine-scented sanitaria kept for a similar purpose, namely to provide an antiseptic atmosphere bactericidal to these ailments; one which is both sanitary or health-preserving for weak lungs predisposed to disease; and also sanatory or healing for those whose lungs are still in the incipient and curable stages of lung trouble. Three thousand years ago the great sanitarian, Jehovah, gave this deep and far-reaching lesson to follow and medical riddle to read; and on discovering its meaning, object, and *modus agendi*, to widen the idea by applying it to preventive medicine generally. Modern science is only beginning to realize the depth of the medical and hygienic instruction of the oldest parts of our ancient Bible.

What effect might this incense inhalation be supposed to exert on the health, strength, diseases, longevity, and mortality of the early Hebrews, individually and collectively? At the time of the Exodus the Israelites numbered over two millions of souls; and, no doubt by miraculous, that is Divine agency, there was not amongst that huge multitude whom Jehovah had "increased exceedingly" (Ps. cv. 24) any disease or ailment, for "there was not one feeble person among their tribes" (Ps. cv. 36). This constant, hourly, daily, yearly disinfection would help materially to keep them so. Thus:—

1st. It would prevent or tend to lessen the development of those acute bacterially-originated contagious diseases, that now and everywhere decimate mankind, and are especially apt to develop in camps and other more permanent communities where human beings congregate, and therefore where defective sanitation is apt to prevail; namely, typhoid, typhus, variola, and the contagia generally.

2nd. It no doubt tended to prevent the development and spread of the microscopic and now well-differentiated bacillus of that dread disease that is medically credited with carrying off one-seventh of the human race, viz., phthisis or pulmonary consumption. It thus indirectly prevented its hereditary manifestations, as shewn by the great freedom of the Hebrews from that disease at the present day.

3rd. It no doubt helped largely to prevent the development of that dreaded scourge, then so prevalent in Egypt, and that has clung to the human race ever since, namely, leprosy, another of the bacteric ailments, universal and dreaded.

4th. We read in the Pentateuch of no acutely infectious diseases such as typhus, typhoid, diphtheria, scarlatina, &c.; that class which so frequently decimated ancient mediæval and even modern camps; though now materially lessened and wholly banished from some modern ones; thanks to an improved knowledge of sanitary science and practice. Was this immunity due mainly to incense breathing and to bactericidal vapours, superadded to the already pure air of the desert, and other favouring sanitary factors peculiar to the Hebrew camp.

All these beneficent results the incense-laden and bactericidal air of the Tabernacle accomplished by its frequent inhalation and application to the extensively ramified air tubes and cells of the lungs; and by absorption from these, solution by the blood, and carriage by this to every cell, tissue, organ, and part of the human body; thereby rendering these an unsuitable soil for the lodgment and growth of these microscopic vegetable microbes and their spores, and thus a preventive of those diseases. And, if these odours did not actually kill these disease-producing germs and spores, it would, at least in most cases, greatly lessen their vitality, virulence, procreative activity, and rapid reproduction; and would thus greatly counteract the spread of disease.

Unquestionably it was mainly by the strict enforcement of the eleven sanitary agencies now spoken of, designed by Jehovah, but faithfully carried out by Moses, that the sanitation of the Hebrew was kept in perfection, and that holy edifice pure and the healthiest part of the entire camp: while that of the camp itself and the congregation were materially aided: so that probably no disease was ever contracted in the Hebrew Tabernacle during the whole of the Forty Years' Wanderings. These eleven main sanitary agencies of the Hebrew Tabernacle were:—

1. The elimination of diseased animals for sacrifice.
2. The prohibition of "unclean" worshippers.
3. The mobility and frequent removal of the Tabernacle.
4. Its sanitary material.
5. The systematized Priestly and Levitical duties.
6. The systematized order of worship.
7. The systematized order of sacrifices.
8. Immediate and complete removal of debris.

9. Scrupulous cleanliness of the Tabernacle and staff.
10. Good ventilation.
11. Disinfection of the Tabernacle, staff, and its atmosphere.

Some minds are apt to consider that because they were essentially religious, all of the rules, regulations, and ceremonies connected with the Hebrew Tabernacle and its ritual are, taken in their entirety, altogether or mainly typical; the sanitary purpose, if existant at all, being only very occasional and extremely subordinate. This is evidently an erroneous and partial view, which a critical survey like this should go far to obviate: as it shews—

a That not one of these eleven functions, or the physical, medical, or sanitary agencies by which they were effected can be justly claimed as being wholly typical and allegorical.

b That every one of them can be shewn to be strictly sanitary in its results; some of them very strongly if not wholly so; and therefore we must conclude:—

c That at least the majority, and all of the most important of these agencies, functions, and laws connected with the Hebrew Tabernacle and its ritual had an intended sanitary aim; was ordained for this secondary though subordinate purpose by the Divine Sanitarian; and contributed to make most of these functions doubly sanitary, that is sanitary for the body as well as sanitary for the soul.

In short it was by these sanitary efforts that Jehovah met and counteracted certain insanitary tendencies that He had initiated, by causing the construction of the Hebrew Tabernacle and instituting its peculiar ritual, in the very midst and centre of the dense Hebrew camped community. How well these sanitary appliances, one and all, effected their purpose; and how complete and "perfect" was the result of the Divine sanitary legislation regarding the Tabernacle is shewn by the absence of any record of serious disease from Tabernacular causes or agencies, direct or indirect, among the Hebrews during the entire Forty Years' Wanderings. But for these admirably selected and carefully executed sanitary precautions, the Hebrew Tabernacle would soon have resembled a badly-kept and very unclean abbatoir, soiled and lumbered with the skins, bones, horns, entrails, feathers, blood and other refuse of large four-footed animals, as well as with vegetable and other sacrificial debris. While, but for regulated laws, the Priests might soon have degenerated into the likeness of slovenly butchers, with besoiled hands, arms, feet, and clothing; men with little claim to respect or obedience. And the Hebrews, instead of

gladly resorting to their clean, quiet and awe-inspiring place of worship, to see and listen to their cleanly Priests, would be loath to approach either for fear both of physical and ceremonial pollution. As it was, we can fancy the busy scene. The sedate Priests busily engaged in sacrificing, and frequently washing both hand and feet according to the strict letter of the Mosaic law. Their equally active assistants, the Levites, are employed in removing the blood and debris of the sacrifices. It was thus, and thus only, that the Tabernacle, where God dwelt all unseen by the teeming multitude around Him, and where He chiefly met the Godly Hebrews, was constantly kept physically clean. No sooner was its earthen floor or its altars soiled by sacrifices: no sooner were the hands, feet or clothing of the Priests and Levites soiled thereby; than they were at once cleansed, the former by instant removal, and the latter by frequent washing. Everything in and near the Tabernacle, and all persons permitted to approach it; and even its atmosphere; were thus models of cleanliness; fit for the Divinity to look at and for the congregation to frequent. And we may be certain that if the Tabernacle and its complicated services and sacrifices, which included so much that was insanitary, in spite of all these many sanitary precautions to obviate these, had not thereby been made in every respect healthy in the highest degree, the Deity would never have caused its erection and inaugurated a ritual of that complex nature, and still less would He have continued them, at least in that locality. Because, not only is cleanliness, but also the entire programme of sanitary science, next to Godliness; as its various factors and its laws, in the category of which we may reckon the sanitary laws of the Tabernacle, are Divine; and are to be included among the many forces and laws which are necessary for and dominate in God's vast and complex creation.

Moreover, it will be evident that, superadded to the purest of water to drink and the healthiest of food to eat, the Hebrews also had the benefit of that most important sanitary item, the purest air to breathe: and that the regulation of the hygiene of the Tabernacle was only another though very important part of the general hygiene of the camp and of the personal hygiene of the people. And that it was the combined sanitary influence of the whole of these many different hygienic factors by which the health of the Hebrews of that day was in the main kept so perfect as it was; that they were kept so free as they were from the camp diseases that subsequently ravaged armies and killed far more than the sword, bayonet, or the bullet in actual warfare; and also largely by this that their national vitality, health, strength, longevity, and freedom from certain widespread diseases, have been handed down to the present day.

This excessive attention to the different items of the hygienic programme of the Hebrews, especially that of their Tabernacle, in which great attention to cleanliness in all things was a very marked and prominent feature; and which to many may appear superfluous, nay, in some respects even childish, as it no doubt did to the irreligious Hebrews of that day; was firstly and mainly symbolic or typical, ceremonial, and figurative. But who, at the present day, will aver that, though the ancients no doubt thought differently, it was not also largely and essentially, nay, imperatively, medical and hygienic: and also absolutely necessary for the continuance of their religious service: and still more for the comfort and health both of the Priests and Levites who ministered there, but also for those of the Hebrews at large; by promoting the purity of the air they breathed and also the cleanliness of their skin; two items of first importance to the maintenance of perfect health.

Thus Jehovah's sanitary legislation; His revelation and enforcement of the Mosaic code, with its sacrifices, oblations, multiple laws, and regulations; all contributed toward the great double aim and purpose He had in view; and combined to aid not only the hygiene of the Hebrew soul, but also that of the body. So that in the appointed place for developing and increasing holiness the Hebrews also found health. And whoever desired and sought holiness most, also found the highest meed of that inestimable boon; and thus received a double reward.

The following table, in which these different functions and ceremonies of the Tabernacle and its ritual are individualized, will serve to illustrate the above point more emphatically, by shewing:—

1st. That comparatively few of them were wholly typical in their object.

2nd. That on the other hand some of them were in no sense purely or even partly typical; but were wholly sanitary.

3rd. That the great majority of them had a double object, and were not only typical but also sanitary in their aim; the two objects being closely intertwined; the sanitary predominating in some and the typical in others.

Is not this frequent ignorance, overlooking, or minimizing of the hygienic aim of these Tabernacle functions and ceremonies an obvious and a grievous mistake; inasmuch as, while of direct and great sanitary import to the Hebrews then, they were also tuitionary to future ages and to us.

TABLE XXV

To shew the Typical-sanitary and Mixed Functions of the Tabernacle.

No	Functions.	Typical only	Typical and Sanitary	Sanitary only
1	The central site of the Tabernacle	1		
2	,, Special material ,,			1
3	,, Extra camp burial ground			1
4	,, Open court for the congregation			1
5	,, Moveable Tabernacle			1
6	,, Odour absorbent roof and hangings			1
7	,, Selection of clean and unblemished animals for Sacrifice		1	
8	,, Exclusion of ceremonially unclean Worshippers		1	
9	,, Systematic regulation of staff duties		1	
10	,, do Worship		1	
11	,, do Sacrifice		1	
12	,, Scientific ventilation of Tabernacle by Altar heat		1	
13	,, Incense oblation		1	
14	,, Inunction of the Holy Anointing Oil		1	
15	,, Cleanliness, Priests, washing bodies and clothing on consecration	1		
16	,, ,, ,, ,, when ceremonially defiled before officiating	1		
17	,, ,, ,, ,, before approaching the Altar	1		
18	,, ,, ,, ,, ,, entering the Holy Place	1		
19	,, ,, ,, ,, hands, feet, cups, utensils, &c. during Sacrifice		1	
20	,, ,, ,, putting on linen on entering Holy Place—washing flesh and putting on official robes on exit (Lev. xvi. 26)	1		
21	,, ,, persons after disease		1	
22	,, ,, instant removal of Sacrificial debris		1	
23	,, ,, of tabernacle by non deposit of objectionable refuse		1	
24	,, ,, Priest who burnt skin, flesh, &c. of the bullock or goat from the sin Offering—washing clothes and flesh (Lev. xvi. 28).	1		
25	,, ,, of persons after ceremonial defilement		1	
	Totals	7	13	5

Thus, although the functions and rules dominant in the Tabernacle would by many be supposed to be especially typical as pertaining to religion, the table shews that only seven of the twenty-five here mentioned, were purely typical; while thirteen were of the mixed order, partly typical and partly

hygienic; and no fewer than five, or one-fifth, were altogether sanitary. But this arrangement is only in accordance with what prevails through the entire Mosaic code; and in the laws and functions of that code that were extra Tabernacular. Thus the laws concerning the selection of food (Chap. 5, Vol. 1) and its division into clean and unclean varieties, was not purely typical but largely sanitary. So also was that regarding the water supply, which had to be pure, out of the flinty rock, a typical result also largely sanitary. So also the camp regulation regarding cleanliness was not wholly typical but largely sanitary. In short, the typical and the sanitary were largely interwoven in the Mosaic ritual and in the Tabernacle service; two important effects produced by one effort; one law made to effect a double purpose; body and soul hygiene combined.

Thus, while we study the ancient medical classics, whether with a view to note the rise and progress of medical lore; or with the object of contrasting our present advanced and assured knowledge with the crudities, absurdities, and inconsistencies of a former day; if we will take the trouble to follow a seldom trodden path and search the most profound and reliable of them all, which dates still further back than any, namely, the Mosaic writings, and is perhaps the most ancient medical literature extant; we leave our perusal with the impression that they can teach even modern medical science and philosophy. And the conclusion is forced upon us, one that ought to exist already if we remember the source, that the Divine Author of these books knows mankind and human medicine far better than any member of the race ever can do. And that He, with the most consummate skill and wisdom enunciated exactly what the Israelites of that day, and what the world of the future could comprehend and follow. Occasionally we glean a valuable though perhaps crude thought, or a helpful hygienic hint from the ancients. But where can we find so many choice and important health maxims as those bequeathed by Heaven and chronicled over 3,000 years ago in the Pentateuch? The early Hebrew regime was a special one, medically and otherwise. It was one in which Jehovah occasionally inflicted disease by miraculous means (Numb. xxi. 6); and cured them in like manner (Numb. xxi. 9). And He could easily have cured diseases originated in and by the Hebrew ritual and their Tabernacle in like manner, so that the many insanitary effects of the ritual might be met and overcome in this manner and without the sanitary machinery that He instituted; and the Hebrews of the Wilderness thus kept as healthy, strong, and as free from disease as when they left Egypt (Deut. viii. 4). But the entire Hebrew regime was also educational. Disease could not in future days be met by mankind in this miraculous

manner. Physicians of coming ages could not cure disease caused by such unhygienic influences by performing miracles. Jehovah therefore introduced a totally new method to meet this emergency, namely, by preventing or frustrating the inception of disease by counteracting and anticipating sanitary agencies, influences, and methods, both natural and artificial. These methods comprise the public sanitation of the Hebrew Tabernacle, and the laws instituted for this, as recorded in detail in the previous pages. Still, although the study of God's works and His laws, as read in His Word, the Holy Scriptures, is as educational, interesting, and important as are their ex-Biblical findings; the Mosaic code has never been fully received in its entirety. Its completeness and comprehensiveness have never been fully realized. Neither has this portion of it, the hygiene of the Hebrew Tabernacle, been fully appreciated or studied as they ought to be.

The factors necessary first to attain and then to maintain hygienic perfection in the many varied circumstances of human life, and its different accessories and environments, are not only numerous but correlated. Everywhere there are major and minor ones. And in promoting the former, it is most imperative that we should not neglect the latter; because by persistence and frequent or constant repetition, these apparently trivial hygienic aberrations become both formidable, dangerous, morbific, and often deadly. So that in the end these frequently become of greater sanitary importance than the minor ones. This precaution the Divine Sanitarian not only took but emphasized in the many different sanitary arrangements of the Hebrew Tabernacle, the design and working of which was so completely and in every part Jehovistic. It was not by one only but by a judicious combination of the major and minor sanitary factors most approved at the present day, that the structure, furniture, and enclosure which together formed the Hebrew Tabernacle, with its atmosphere and its general environment, as well as its numerous staff and more numerous worshippers, were always kept in the highest plane as to cleanliness, and therefore as to health. But for these multiple hygienic arrangements, combining the most thorough order and systematic cleanliness of all in and about and over the Hebrew Tabernacle, instead of its being a solemn, healthy edifice, where the worship of and sacrifice to God might be peacefully, devoutly, and quietly carried on by Priest and people alike, would have soon permanently become a dirty, unsavoury, unsanitary resort, where the attention of the worshippers and those who ministered was constantly distracted from the service by fear of physical and therefore ceremonial contamination. Nor would its environs or its Court, Holy Place, and Holy of

Holies; soiled, impure, and thus both physically and ritualistically profaned, have been a fit dwelling for the Supreme (Job xxv. 5) or a proper place for the pure Divinity to meet and speak to His people and inculcate physical, physiological, moral, and spiritual purity. The hygienic laws, epitomized and systematized in these pages shew that neither were the greater nor the lesser sanitary factors of the Tabernacle neglected in the smallest degree. And, as a whole, it must be conceded that in the hygiene of the Hebrew camp, and especially in that of its central Tabernacle; the Divine Sanitarian combined the various factors with incomparable skill and a tact worthy both of scholarly study and full practical acceptance. The sum total resulted in a healthy Tabernacle, camp, and people. And it cannot fail to be apparent that the Almighty and Omniscient Wisdom legislated for the sanitary perfection of the Hebrew Tabernacle with the greatest minuteness and skill. The Divinity who made and governs all things; from whom nothing is hidden or secret; who manipulates suns as Man does sandgrains; who condescends to notice the small as well as the great things of earth; who clearly sees the infinitely distant as well as the infinitesimally minute; who made and governs physical and physiological laws; knows exactly what objects it is desirable to attain by sanitary agents; and also the precise means by which to attain them. The Divine Author of that masterpiece, the Mosaic Code, was as conversant with sanitation as with its other themes. Every one of the myriad secrets that mundane philosophers and scientists are so bent on solving have from the time of their inception been fully "open to Him with whom we have to do" (Heb. iv. 13). His sanitary code is not one of the least of his successes. And so it must have appeared to Moses when the full value, depth, and bearing of its great truths added to those of the other codes were suddenly and cumulatively divulged by the revelations of Horeb.

Nor can we suppose that these sanitary laws so definitely and so practically proved by the satisfactory hygienic success of the Tabernacle; and far more therein than in any other section of the Mosaic hygiene; were meant for the immediate benefit and health of the Hebrews only; or for their sanitary instruction only; or for their enlightenment on an old subject in a new direction, namely, the opposition of disease by preventive as distinguished from the older and primitive curative measures. They were clearly anticipative also; and meant to teach the whole world, not only of that day, but for all time

Seeing that Moses "wrote" (Deut. xxxi. 9) the hygienic law which forms part of the far more comprehensive code known by his name: and seeing that he also penned the

elaborate hygienic system of the Tabernacle herein described: and seeing that he did this wonderful medico-scientific and literary feat over 3,000 years ahead of his time; and elaborated a law which, though humanly ancient, is neither obsolete nor antiquated, but, on the contrary, perennial and immortal: do not these facts go far to shew from prima facie evidence, that his marvellous sanitary knowledge was not self-generated but inspired. And if to this we add, that the genius who proclaimed these laws not only disclaims their authorship, but also enlightens us as to their real source, and that a Divine one; does this not completely settle the questions regarding the true author, and the inspiration; and prove indisputably that these sanitary laws and ideas carried into effect in the Tabernacle are Divine and Heaven-elaborated; thus adding one more proof to the veracity of the Holy Scriptures?

Jehovah has been teaching Man ever since He created the primal pair; and has endeavoured to educate them after His Divine ideal. The education of the Wilderness was only one, though a most important phase of that scholastic training. By the Holy Scriptures He has been teaching mankind, soul as well as body hygiene for thousands of years; and in no direction more than in the sanitation of the Tabernacle. The mighty Creator, who has fashioned worlds in infinite variety of number, size, diversity, beauty and elaboration, condescended to honour our insignificant earth and rebel race by personally teaching humankind the elements of hygiene; and thereby instructed us how best to make and conduct communities and camps, sacred and secular edifices and congregations, with a view to develop their highest efficacy, comfort, and health. How little past ages have listened to either, the state and the story of the world and its inhabitants shew. How much we of the present day may listen with a view to learn, remains to be seen. Who can deny that the portion of God's teaching we have now studied was not comprehensive, beneficent, far-seeing, and anticipative? What mortal of ancient or modern times could have conceived so elaborate a hygienic system as the Mosaic? Who could have developed a hygienic framework like that of the Tabernacle? Who is there that can teach like the infallible All-wise and All-seeing (Ps. xciv. 10)?

While archæological research in Palestine, Egypt, Babylonia, and Assyria has lately startled the Christian world by confirmatory additions to the credibility of Scripture: so also research into the literary archæology of the Pentateuch and the Mosaic hygiene shew; that we of modern times are only beginning to be educated up to the sanitary level of the days of the early Israelites and of their camp, and especially of their Tabernacle: and that after we have been wandering for over 3,000 years in

the wilderness of secular sanitary darkness. And are now only beginning to see that this also adds its quota to the credibility and the inspiration of the Pentateuch and the Holy Scriptures; and also combines to shew the far-seeing and unquenchable love and beneficence of the Almighty; and the exceeding wisdom and perfection of the laws that He made specially for Man. By this Divine gift and revelation of medical or body hygiene, both private and public, like that of the Tabernacle, Jehovah shewed His especial interest in and love for Man, by instructing Him how best to combat the ailments they had brought on themselves; and that was not by attacking the visible leaves and branches of the full-grown disease tree, but by preventing the ailments by striking at their very roots and seeds and origin; thus forestalling them by preventing their primary inception and growth from the germ. His hygienic capacity and forethought in stooping to forestall and help human ignorance and helplessness by conceiving, formulating and promulgating these many and new sanitary devices so fully and effectively, strikes the mind with combined awe and gratitude. As still more does His comprehensiveness in formulating so many different, complex, and "perfect" codes on so many different subjects as those comprised in the law of Moses; and in no section more evident than in its hygienic portion. It is with this division of Bible knowledge as with all else. It shews that there is only one being in Heaven and Earth, whose information, not only on one but on all subjects, is supreme, universal, and thorough. God alone is all-wise. Assuredly the hygiene of the Bible, both in its entirety as the foremost branch of medical science; and in its details and sub-divisions; and in no part more than in the hygiene of the Hebrew Tabernacle; all so complete and profound, furnishes as ample proof of the Divine origin of the Holy Scriptures, as can be adduced from any other source.

The Bible record thus proves to unbiassed minds that in medical lore, as in many other leading departments of necessary knowledge, Jehovah has, ever since the fall, done far more for Man's benefit and education than we often realize or acknowledge. Nor is it in the spiritual, moral, and social law systems and advice alone, but also in the medical laws of the Pentateuch that His instruction has been so long offered and yet either despised or ignored even by those to whom it has been available. Divines are not ashamed, nor do they deem it derogatory to sit at the feet of the Divine Moralist, who thundered the Ten Commandments from Sinai. Nor should medical men consider themselves demeaned by listening to and learning from the sanitary laws of the same original, infallible and heavenly philanthropist. Nor ought captious Biblical

critics ever to forget, *first*, that the hygiene of the Tabernacle, like the entire Mosaic law, of which it forms a by no means unimportant part, is not human, but Divine and Jehovistic; *second*, that in this, as in all else, "His work is perfect" (Deut. xxxii. 4); and, *third*, that by neglecting this study we are not only contemning the Supreme but also depriving Him of some of the glory which is His due, for such manifest beneficence and forethought regarding the welfare of our bodies, as well as for that already acknowledged for our souls.

And, although the subject is one which is Divine and Biblical, still it is also medical and hygienic. And so it is in no controversial or hostile spirit that physicians maintain regarding this, that just as Moses, by virtue of his medical education, was well fitted to record, expound, and apply practically the Mosaic hygiene on his countrymen; so medical men are clearly better fitted to weigh the value of the medical lore that God has bequeathed to the human race than any other body of men, even Divines, who on their part are, by training, the best exponents of the theology of Holy Scripture. Every individual man has not only his innate congenital gifts; but also their specially acquired and distinctive professional knowledge. Both of these are necessary for investigations of this kind.

Doctors fully realize that their life work, and that of Divines, is, or ought to be, not only sacred, but also correlated and intertwined. Are not the world and the human race their mutual fields? Are not both professions working for and under, though with God; and mutually striving to counteract sin and its results; one that of the soul, the other that of the body? Do they or should they not work together under the same banner, love; and under the same potent leader who honoured the medical profession by styling Himself, not the great Divine, although He was that par excellence, but the great physician, because he is physician for the entire Man, and promotes the health and healing of human souls as well as bodies. The members of both professions, viewed thus, are merely God's servants; doers of His work; and helpers in His beneficent and saving mission to Man.

After this critical survey of the hygiene of the Hebrew Tabernacle, which forms part of the Bible hygiene of the Mosaic hygienic code, may it not be fairly asked:—

1. Whether created, dependant, and insignificant beings like us, should consider it derogatory to overlook or ignore this literary and medical gift of the Almighty, included in the hygiene of the Hebrew Tabernacle, which forms so important a section of the Mosaic hygiene: or wise of finite and fallible minds like ours to neglect and despise the sanitary laws of infinite

wisdom and eternal love; laws which are, though complex, yet complete and indeed "perfect"; especially those of the Tabernacle, the most important part of the Mosaic public hygiene, nay, of the entire Mosaic sanitary code. Human laws grow old and obsolete. God's laws, otherwise termed the laws of Nature or Creation, never do, but are perennial, race-lasting, and time long. This hygienic landmark and revelation of Jehovah's was a unique event in the history of the world and Man, inasmuch as it is the only instance in our entire mundane story of the Creator entering minutely and fully into hygienic matters, and giving a model and complete system of sanitation adapted for the entire and compound being man; and for the many different departments of our human entity. This sanitary system was bequeathed, as were the Scriptures in their entirety, not for any special body but for all the Churches; not for one but for every race; and not for the Hebrews and the Mosaic era, but for all time.

2. Would it have been a retrograde step on the part of the ancients, or even of the moderns, to accept and utilize these sanitary laws of the Mosaic economy, any more than it is now and will continue to be beneath us to accept and profit by the expiatory sacrifice of Calvary 1,521 years later on; an act likewise of a bygone age?
3. Whether laws which, more than 3,000 years ago enjoined and enforced strict cleanliness in all things relating to humankind, in soul, body, morals, and social life, as the one great essential and fundamental fact in sanitation, is to be deemed antiquated and obsolete, because by human reckoning old?
4. Whether laws which, over 3,000 years ago, instituted and enforced isolation in that typically contagious disease leprosy; and thus inferentially did so in every one of the many other infectious and contagious diseases that afflict humanity, and even those of the lower animals, is to be considered antiquated or obsolete?
5. Whether laws which, at least over 30 centuries back, recognised and settled the question of the contagiousness of leprosy, a question regarding which modern medical minds are still at variance; are to be deemed antiquated and obsolete?
6. Whether laws, which over 3,000 years ago, suggested and inferred the presence of ocularly unseen micro-

scopic foes in the shape of morbific bacteria and microbic germs in the atmosphere and its dust, as well as in food, water, and earth, from one or all of which they enter the human body by the portals of the lungs, stomach, or skin, and thereby become the source of many of the most widespread and deadly diseases that afflict mankind, can be deemed antiquated or obsolete?

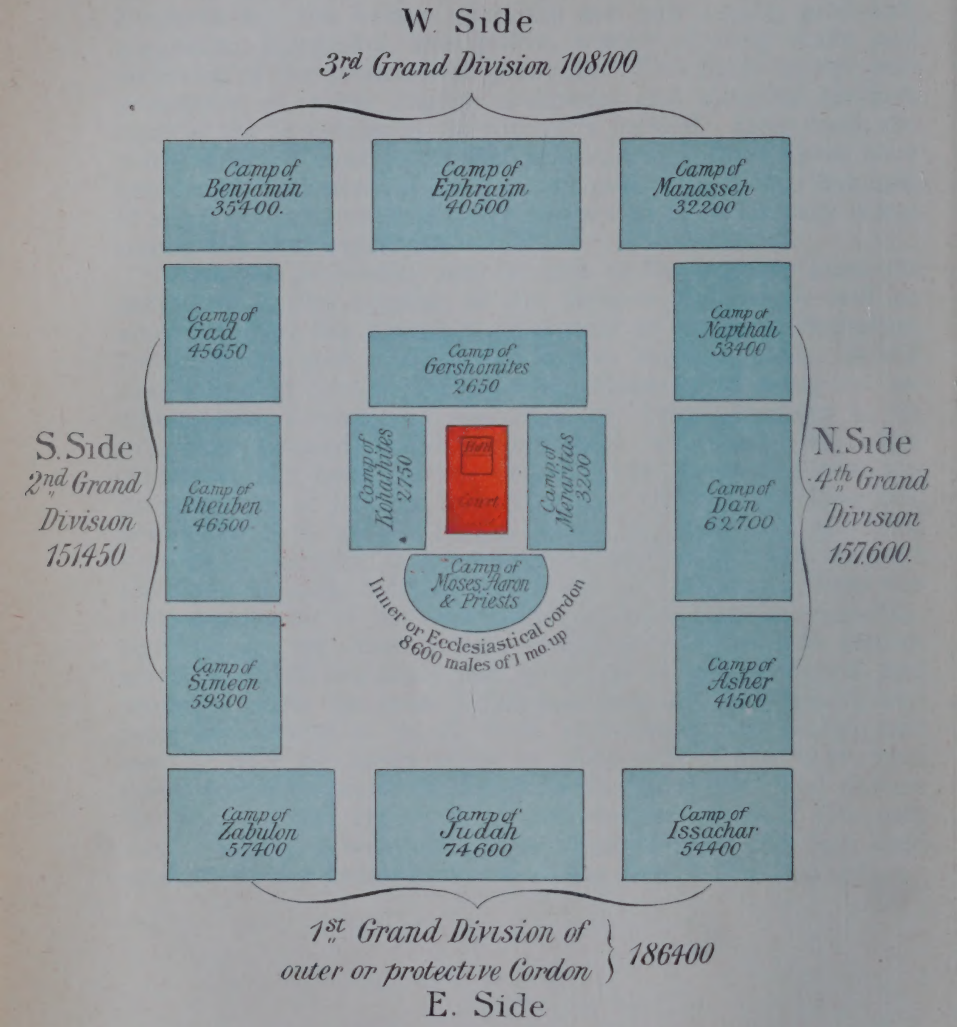
7. Whether laws which, over 3,000 years ago, pointed the way to counteract the morbific effects of these microscopic contagia by disinfection of various kinds, especially fumigation, cremation, dilution, and dispersion, can be deemed obsolete and antiquated?
8. Whether mankind, ever since the promulgation of these God-designed and therefore perfect hygienic laws, from the era of the Wanderings on to the present day, have not, and still are, though to a less extent, erring grievously, in practically neglecting, ignoring, and despising the Divine laws of hygiene found in the Pentateuch, instead of deeming them perennial, constant, and as lasting as humanity; and thereby making them the basis and foundation of all our sanitary systems; instead of relegating them to our medico-archæological bookshelves?
9. Whether it is not only both foolish and disobedient, but even criminal, and almost as disastrous for mankind and for the human body, thus, by ceasing to deem these laws as tuitionary as ever, to neglect these hygienic lessons of the Deity and of Heaven, as it is to neglect or to break the spiritual, moral, and social laws of the Decalogue, meant for Man's higher nature?
10. Is it not unwise, if not culpable, in medical men, professedly the only body who are singly and collectively capable of fully and correctly estimating the great value of the Mosaic hygienic code, and aware of what it might do for the health and welfare of the human race; to permit, by their indifference and silence, the Mosaic laws of health to remain practically dormant and unread, except perhaps by piously disposed Hebrews, or Christian students of Old Testament history and literature?

This enquiry into the hygiene of the Tabernacle gives additional proof of how huge and practically inexhaustible is the mighty mountain, and how deep the yet unfathomed mine of knowledge enshrined in that marvellous and incomparable book, the Holy Scriptures; and intentionally placed there to

instruct and incite man by the Omniscient and Infinite Wisdom. After an unbiassed critical survey like the foregoing into the physical construction and physiological functions of the Tabernacle of the Wilderness, who can aver that the hygienic and sanitary hints which the Creator embodied and codified for its use over three thousand years ago, for the instruction of the Hebrews and the human race, are not only ample, profound, suggestive, thoughtful, anticipative, worthy of deep study and deserving of the profoundest gratitude. This tardy receipt and acceptance of these highly judicious and scientific sanitary hints of the Scriptures is not without a parallel. How much the many other different forms and indications of Divine love have also been overlooked or despised in past ages. This example of reluctance to receive sanitary instruction from Divinity is not among the least important.

Thus, the profundity and breadth of the sanitary measures developed in the hygiene of the Hebrew Tabernacle will be more apparent the deeper it is studied as the most important and elaborate part of the entire Mosaic hygienic code: as will also the good fortune of the early Hebrews in being its recipient and transmitter; and ours as equal legatees in its beneficent counsels. The more closely we study the Holy Scriptures the more do we perceive the deep and constant paternal care of Jehovah for His special children, the Israelites, and through them, the human race; and that this extended even to the minutiæ of life. Can we doubt that when we read the story of Man, both as a race and as individuals, from the clear standpoint of the next world, we shall find that, notwithstanding all our murmurings, rebellions, conduct, and foolish ways; after all our trials and afflictions in the wilderness and school of earth, the great father has been infinitely kinder and more considerate to us all, both individually, nationally, and racially than we either knew or deserved? "Oh that men would therefore praise the Lord for His goodness: and declare the wonders that He doeth for the children of men" (Ps. cvii. 15). "Whoso is wise will ponder these things; and they shall understand the loving-kindness of the Lord" (Ps. cvii. 43).

Plan of the
HEBREW CAMP.



Grand total of men fit for war - 603550.

" men women & children } 2,000,000.

CHAPTER XVII

THE HYGIENE OF THE HEBREW CAMP

"The Lord walketh in the midst of thy Camp" (Deut. xxiii. 14; xxiii. 10).

The history of the early Hebrews and their withdrawal from Egypt has been given in another place (Vol. 2, Chap. 39). It will be remembered that the original family of Jacob, 70 in number, had gone to Egypt in the year B.C. 1863, Hales. There they were first kindly treated, but subsequently reduced to abject slavery. But, as they were a God-selected race, meant to develop a special purpose, namely, to be God's instrument for the education of the world, especially in Godliness, they increased with exceeding rapidity, and did so as fast after as they did before oppression and the infant-slaying edict of Pharaoh (Ex. i. 16); so that after a period of 400 years they had multiplied from 70 to upwards of 2,000,000 souls. Jehovah's care of them was still further shewn by their health being kept as good as their increase was rapid. Thus, in spite of hard taskmasters and unsanitary agencies, there was not a single "feeble" person among the tribes when they quitted the land of bondage (Ps. cv. 37); and therefore no sick or ailing ones, even among the aged and the immature. The education of the Hebrews in docility and dependence on God had been so far accomplished; and it was now necessary for the further development of the Divine plan that they should leave Egypt. But Pharaoh of the hard heart would not willingly let them go. In order to compel this the Egyptians were afflicted by the miraculous ten plagues, by which they were so frightened and harassed that they were ultimately afraid and glad to get rid of the Hebrews (Ps. cv. 37) and of the Jehovistic miracles. Then followed that momentous event and great landmark not only in the history of the Hebrew race, but in that of man and the world, namely, the Exodus; whose story is contained in the Pentateuch, and in mythical form among many other races than the Israelites. This exit of the lately enslaved Israelites from bondage and consequent birth of the Hebrew nation occurred in the year of the race 2,513; that is about B.C. 1491; or

about 3,394 years ago. When they thus quitted Goshen for the Deserts of Arabia, they entered on a very different kind of life, with very different sanitary surroundings. This hygienic change and outlook implied, necessitated, involved, and was meant to effect considerable changes, not only in their national and public but also in their individual condition; and not only in their spiritual, moral, mental, social, but also in their physiological and physical environments, as well as in their medico-sanitary or hygienic surroundings.

In Goshen the Hebrews were subjected to hygienic factors, which, as in the majority of human instances, were partly good and partly indifferent. Among the former were:—

1st. They lived in the healthy, alluvial, and pastoral eastern corner of the Nile delta.

2nd. They were not closely massed, but scattered and dwelt apart in houses or huts.

3rd. They had an abundance of pure air and water for cleanliness and health.

But much of their hygienic environment was indifferent or bad. Thus:—

1st. They were deeply oppressed, depressed, and demoralized morally, socially and spiritually by the prolonged and great yoke under which they groaned. These, especially when conjoined, form the worst of insanitary agencies, especially when there seemed little hope of reprieve or release.

2nd. They were physically overworked, even for slaves. Overwork is one of the chief predisposers to and makers of disease.

3rd. They had little cessation from work and no holidays. Too little sleep or rest are both potent health underminers and disease originators.

4th. Their dwellings were doubtless overcrowded and dirty. In this matter both the taskmasters and their victims would become increasingly indifferent; to the detriment of the latter, from impaired health or disease. Despondency induces loss of self-respect: and this again inattention to ordinary details of hygiene—cleanliness, &c.

5th. Possibly they were also underfed, as their taskmasters might adopt their field and flock produce as they did their labour. Semi-starvation and hasty dieting are two potent weakeners and promoters of disease.

6th. As overworked and dispirited slaves they had little leisure or desire, and a constantly lessening inclination for personal, social, house or public cleanliness; a calamity apt to grow into a deeply rooted habit.

Cleanliness in all things is one of the main factors of health, and vice versa of disease: as it is the foundation stone of all hygiene.

7th. They lived in constant fear of the lash or other punishment, such as additional work, curtailed food, &c. Fear and mental depression are highly unsanitary.

Notwithstanding long subjection to these potent insanitary agencies, and just as they were marvellously increased and increasing in numbers, so they were also miraculously kept in perfect health by Jehovah. Otherwise health and life would both have suffered, they would have died by the thousand, as other slaves in like circumstances; or become ailing, infirm, physically, mentally, socially, and racially enfeebled, and degenerate in every respect: as their oppressors, the Egyptians, desired and hoped and tried to effect.

After leaving Goshen for the Deserts of Arabia, the hygienic environment of the Israelites was materially altered; in some respects, though not in all, for the better; in others again for the worse. They had been freed from certain things that were decidedly unsanitary, depressing, and morbific. But, on the other hand, the change introduced certain new insanitary agencies. Thus, among the new health-inducing factors were:—

1st. They had left behind the mental depression of slavery. Freedom eased their minds, elated, and ultimately improved their physical, mental, moral, social, and even their spiritual salubrity.

2nd. They were no longer overworked by hated, cruel taskmasters and tyrants, but laboured easily, voluntarily and pleasantly for self, family, tribe, nation, and Church; all of them healthy incentives.

3rd. Their rest was assured, not curtailed or broken; thus highly sanitary.

4th. They now fed themselves by an abundance of judiciously selected food; obtained first from Egypt (Ex. xii. 36-39), and subsequently by miracle (Ex. xvi. 15). They were no longer rendered prone to disease by semi-starvation or improper dieting.

5th. They had now more time and better heart for personal, home, and public cleanliness, all of them sanitary agents of first importance.

6th. They were now buoyant and hopeful; no longer sad and fearful. Their vis hygienia was at its highest.

7th. They were now subjected to the "perfect" and strictly enforced sanitary laws of the God who made

and sustained them and was acting solely for their interests.

8th. To relief from oppression was superadded the feeling of constant God-like yet paternal supervision and care, both temporal and spiritual; of body and of soul health, and of all the many factors by which these were sustained. This feeling was calculated not only to aid health, but to increase their care of that inestimable and unpurchasable boon.

But, on the other hand, the Hebrews were now subjected to certain other unavoidable unsanitary factors that were apt to militate against and perhaps master the good ones, except under the greatest care. Thus:—

1st. They were now closely packed in a *camp* in army fashion. Camps are apt to be overcrowded, badly arranged, and thus very insalubrious.

2nd. Personal cleanliness was not so easily followed, owing to a deficient water supply and lessened privacy: a potent insanitary factor.

3rd. Public or camp cleanliness is apt to suffer, if offensive matters and debris are not at once removed; and in crowded communities this is apt to be evaded.

4th. A new feature, namely, sacrificing, would lead to unsanitary accumulations if great care were not taken to prevent it.

5th. Overcrowding in camps is apt to make impure and therefore unhealthy disease-generating air; and often also impure morbific water.

Before proceeding to study the special hygiene of the Hebrew camp; a contrast, on parallel lines, of the main factors of these two very different hygienic conditions will not be inopportune or devoid of interest.

1st. One set of factors, that of Goshen, was mainly human, that is partly Hebraic, partly Egyptian: the other, that of the Desert, was altogether Divine, at least after Sinai. Up to that period it was largely Mosaic. After the revelation of the sanitary laws at Horeb, the Hebrews were more completely and indeed entirely under Jehovah's special sanitary supervision: for then his well-devised and "perfect" sanitary code was not only made the Hebrews only law they might follow; but it was strictly enforced.

2nd. In Goshen their food (Chap. 5, Vol. 1) was animal, vegetable, and fish; whereas in the Wilderness it was

a special diet of mixed animal, bird, and vegetable food on Divine lines (Chap. 5, Vol. 1).

3rd. In Egypt they drank the muddy Nile water; in the Wilderness the pure God-given fluid from the rock Chap. 6, Vol. 1).

4th. Their clothing in Egypt was no doubt scanty and poor, as they were hated slaves. In the Desert it was miraculously preserved (Chap. 11, Vol. 1) from decay.

5th. Under bondage their sleep, leisure, amusements were all doubtless scanty and uncertain. In the Desert these free men had abundance of time for moral, social, mental, spiritual, and physical improvement and relaxation.

6th. So, too, their labour in Goshen, whether in agriculture, shepherding, or brick-making, was incessant, hard, compulsory, and for others. In the Desert time was practically their own, to employ, in reason, as they pleased; for themselves, their families, homes, flocks, their own tribe or nation or Church.

7th. In Egypt, for various reasons, especially slavery, which means far more than physical deterioration; they were degraded spiritually, mentally, morally, socially, and politically. After the Exodus, as free men, elated and enlightened, because God-taught, their tendency in every respect was upwards, because Heaven-aided and directed.

8th. But the most material change which the Exodus had induced lay in this; that whereas in Goshen the tribes were scattered over the land, all except those engaged in city building (Pithom, Rameses); in the Desert the entire nation was congregated and massed together in a huge tented city or camp; and therefore placed in a totally different hygienic environment: more especially as regards the details and sanitary dangers of their strict sacrificio-religious ritual.

It is the sanitary plan and arrangements of this huge nomadic community and camp that we are now about to consider. The theme is a worthy study for various reasons:—

1st. The camp was not of Mosaic or human but the Divine arrangement; at least after a time.

2nd. It was planned partly for civil, military, educational and ecclesiastical purposes.

3rd. It is the first detailed plan of any camp recorded in history.

4th. It is very ancient and therefore archæologically interesting.

5th. It was formed in a region where camps are and were common; as the people were largely nomadic then, and pastoral, or warlike and often bent on conquest.

Urban is, as a rule, *cæteris paribus*, inferior to rural salubrity; for obvious reasons; and as a sequel the sanitation of cities, correspondingly more complex and difficult than that of country districts and places. As a rule camp life is still more unsanitary and its sanitation more difficult than those of cities. Hence the Supreme who superintended the sanitation, as He did all other matters connected with His chosen and mission-destined people, had to legislate accordingly to meet conditions that He Himself had imposed and eventualities that He had created, so as to make the camp and laws appertaining thereto such as would best maintain the Hebrew health and strength at the same or raise it to a still higher standard in the Wilderness than in Goshen: where, at the time of the Exodus, there was not one feeble, and therefore no ailing persons among them: and everyone of that vast multitude of all ages was perfectly healthy. Jehovah's evident aim was not only to maintain the same or attain a better standard of physiological health for His chosen people and servants; but also to bring them up to the highest plane of health, in the fullest and widest sense of the term, including spiritual, moral, and social salubrity. What therefore were the sanitary arrangements of the Jehovah-planned and therefore model and perfect camp?

Notwithstanding subjection for no fewer than forty years to this new and in many ways more trying life than that of the country or the city, namely, in camp; the Hebrews of the Exodus were unusually healthy. Doubtless they were even more salubrious than they lately were, even in Goshen. This high salubrity continued during the whole of the subsequent Forty Years' Wanderings. And, except for certain swift and deadly afflictions, such as those which Jehovah sent, namely, plague (Numb. xi. 34); fiery serpents (Numb. xxi. 6), &c.; disasters which they brought on themselves by rebellion, murmuring, sins and faults of various kinds; they would no doubt have enjoyed not only the most perfect forms of health, happiness and longevity allotted to Man generally; but also that measure of all three blessings, allotted to those who implicitly obey the laws of health, of whom alas there are so few; and the result so ideal. As it was, however, even under the multiple and serious unsanitary factors apt to endanger camp life, and from which that of the Hebrews was very far from being exempt; the Israelites enjoyed a measure of salubrity far above the average. For now they enjoyed the special sanitary legislation of the Divine Sanitarian, to promote the good and to lessen the indifferent or bad insanitary agencies of their new

environment. And this system was, moreover, to be administered by a special Divinely-instructed and medically enlightened hygeist of the highest intellectual calibre; namely, the many-sided leader, Moses, whom the Supreme Sanitarian had appointed to divulge, record, and administer His new departure in medicine, the fresh and profound hygienic law known as the Mosaic, but really the Divine; a code that formed part of a much more comprehensive and broader hygienic scheme, embracing the health,-welfare of the entire double entity of Man; his soul as well as his body, in every condition of his first primary, earthly or corporeal life; a scheme thus meant to elevate and better the entire human being and thus the whole human race.

To the special sanitary camp arrangements, calculated both singly and collectively to promote the health of the Hebrews; there were superadded those other potent sanitary items already discussed in chapters (Vol. 1, Chap. 5, 6, 7, 8, &c.); namely, special care in dieting, water supply, cleanliness, rest, and other items that go to complete the Mosaic sanitary code. The result was a condition of high vitality and salubrity, such as the Hebrews never had before, and have never reached since. Because, in the Wilderness they did not act or rely solely on their own fallible and ignorant hygienic judgment, but were sanitarily supervised by the Supreme "Wisdom" and "Mighty Councillor."

The chief reasons for the great healthiness of the Israelites in the Desert may be thus summarised:—

1st. They possessed a most invaluable inheritance, namely, that of great congenital vitality, health, and longevity, all three derived from their God-selected progenitors, Abram and Sarai (Chap. 39, Vol. 2). The best of hygienic conditions and environments may fail to preserve health and life in those whose heredity is unsatisfactory.

2nd. They had God's special care and supervision, sanitary and otherwise; who legislated and gave them health laws, not only to keep their bodily but also their spiritual nature, so closely intertwined, in the highest health; thereby also to make them a model nation to enlighten other nations of that and subsequent times in heavenly and mundane knowledge, and among other important things, in community or camp hygiene: His comprehensive aim being racial; first of the Hebrews, and secondly of mankind at large. It is irrational to suppose that Jehovah's care of the lives and the health of His chosen people would be or was less than that of their clothing and shoes, which

evidently were miraculously preserved and lasted unusually long (Chap. 11, Vol. 1); or that their bodies enjoyed less heavenly care, to prevent decay and waste, than their personal belongings: since the Deity may clearly control the laws of life as easily as He does and then did those of the physical world. The shortened lives of the Heaven-punished Israelites of the Exodus; and the different causes that effected this, such as the earthquake, plague, fiery serpents, &c., that carried off so many, were special punishments, and not ordinary deaths or the result of defective sanitation. So also the high mortality, and in contrast the unusual fertility of the Hebrews to keep their number up to the original standard, after the report of the spies at Kadesh, and the retrograde punitive march southward instead of towards Canaan, were all the result of Jehovah's special intervention: one to prosper the nation as a whole and specially bless them for their own and the world's sake, and in the other for the punishment of rebels.

3rd. The great salubrity of the Desert air, which was temperate and dry, two conditions favourable to health and life, added their influence to the general result.

4th. The natural features and surface of the Desert also aided, as the latter was sandy or rocky, and thus free from disease-begetting, decaying animal or vegetable matter, living (malarial) or dead (putrefactive).

5th. Jehovah had bequeathed and caused to be strictly enforced a judicious and "perfect" system of private and public hygiene; two essentials towards the continued maintenance of health, especially in a camp.

6th. As part of the latter, and to supplement the former, the sanitation of the Tabernacle had especial care: and the resulting inhalation, frequently or occasionally, of aseptic, odoriferous air, arising from the frequent sacrifices in the centre and focus of the camp; odours which saturated the wood, woollens, cotton draperies, hair and skins of the Tabernacle, Priests, Levites, and people; would materially promote sanitation and health, both private and public (Chap. 19, Vol. 2).

7th. The special, Divinely-devised, and well codified hygienic arrangements and environment of the camp or moveable city, in which the still embryo Hebrew nation were congregated for the first forty years of their existence and Heavenly pupillage, until their settlement in and dispersion over the cities and villages and country of Canaan, contributed essentially

to the general salubrity. This camped community was free from factories, workshops, mills, foundries, and other modern nuisances that so often render the air impure and unhealthy, by contaminating it with disease-making dust, vapours, and chemicals.

8th. As long as the Israelites "dwelt alone" (Numb. xxiii. 9), and continued separate in spirit and conduct from the Heathen; both from those the conquered, *e.g.*, the Midianites (Numb. iii.) and those they had no necessity to fight (Numb. xi. 48), they were safely preserved not only from hostile attacks but also from disease; and also aided when these could not be avoided.

That the Hebrews of the Exodus were specially protected and exempt from disease we have the assurance of the Almighty Himself, as at Marah (Ex. xv. 26). "I will put none of those diseases upon thee which I have brought upon the Egyptians: for I am the Lord that healeth thee. In God's hands are the issues of life and death (Is. lxviii. 20), and it is surely as easy for Him to prevent as it is to inflict disease (Ex. xv. 26).

The well-devised arrangement of the Hebrew camp, which thus helped so materially to keep its occupants healthy during the long forty years semi-inactive and expectant life in the Sinaitic peninsula; is thus worthy of survey, to see if modern minds may glean or learn aught, hygienic or otherwise, from this part of the Pentateuch that may have lain unused or unnoticed for centuries, even by civilized and enlightened nations, in building the cities or making camps; because the subject has been so overshadowed in the holy text by other infinitely more important matters.

As the Hebrews were meant by Jehovah to be educated and transformed from a degraded to be a pattern people; so their camp was likewise meant to be a model one; as was also the entire Mosaic code of the practical working of the hygienic department of which it was one of the chief outcomes. That people, their laws, life, camp, and its sanitation, their personal healthiness, vigour, and longevity were all intended to be exemplary and instructive; they were meant as lessons to other people and the whole world for all time. This ideal and perfect community was to have been given mankind much as Eden was to Adam and Eve to shew what a model life should be; and to prove:—

1st. How healthy a camp, city, town, village, hamlet, or house may be if all the God-given laws of health are carefully and persistently followed. And that many, nay most of the diseases, which now and for long have

afflicted mankind, are mainly of their own making, their own seeking and their own fault.

2nd. Even the Hebrew mistakes of neglected hygiene as constant causes of disease, such as surfeit (Numb. xi. 4) are duly chronicled as invaluable lessons, and examples of frequent human errors to be strictly avoided by the sanitarily wise.

3rd. To teach Heavenly superintendence over health and life (Deut. xxxii. 29; Ex. xv. 26; Ps. ciii. 3); the potency of hygiene either in making or marring both; the certainty of God's blessing and help and advice when these are asked for, in all our human hygienic efforts, whether national, public, or private; and the assurance of success in these efforts if well directed and sustained, according to distinct Scripture promise (John xiv. 13).

4th. To teach the Hebrews and mankind generally to depend mainly on God for physical protection, as well as for all else. The Hebrews were to trust in Him and in themselves and not in adventitious aid. Horses were not part of the Israelitish equipment. Other nations used them, but only in war. Jehovah did not intend Israel to become military; but meant them to trust mainly in Him for protection. Nor were they meanwhile to mix with other nations, lest commercial intercourse should lead to contamination and apostacy, as happened subsequently to Solomon. This point, God's desire to promote the best of all courage, namely, a firm reliance on Jehovah, is also seen in the wisdom and the mercy of the Hebrew war laws (Deut. 20). This is best seen by contrast with those of other nations, which are very barbarous. General levies of men seem to have been forbidden (Deut. xx. 2-8). These are common in Asiatic warfare. Indiscriminate slaughter is also discountenanced (Deut. xx. 10-11). So also are pillage and slavery. To this, however, the Canaanites were to be an exception (Deut. xx. 16-17). Jehovah was to fight for them; but leniency and mercy on their part had to follow, in accordance with the Divine example.

Clearly, therefore, as the health of a camp or more permanent community depends not alone on its food, water, air supply, or any other single sanitary agent, but on the combined influence of many hygienic factors; and very largely on its public sanitation; the importance of studying how the Hebrews were kept healthy in their model camp in these primi-

tive times, is worth enquiring into, especially as its sanitary success was so pronounced.

The Israelites at the Exodus numbered 600,000 men, besides women and children, which swelled the number to over 2,000,000. Besides this there was a considerable following or "mixed multitude," probably Egyptians, and the children of mixed marriages (Lev. xxiv. 10-11). The latter, when with the Hebrews were equally under God's special protection. For "one law shall be to him that is home-born and with the stranger that sojourneth among you" (Ex. xii. 49). This was doubtless said to teach the Hebrews that it was not their Abrahamic parentage that entitled them to God's care and privileges; but their personal and national dedication to God, in which those strangers might also partake acceptably.

The Hebrews were no doubt secretly warned and instructed by their prescient leader, Moses, of coming events, and were quietly and steadily preparing for the Exodus from the time of the first of the ten plagues; so that when permission to depart came they could at once start and assemble where told without confusion. An important effect of these terrible plagues, especially the universal death of the first-born, was to frighten the Egyptians; who were, as a majority, ultimately glad to get rid of them (Ex. xii. 33), and no doubt endeavoured to hasten their departure by putting pressure on Pharoah and, by way of conciliation, giving presents and anything the Hebrews coveted or wanted: so that they "spoiled" the Egyptians (Ex. xii. 33-36). Many of these bequests, however, were doubtless willingly bestowed by the Egyptians; who were not all unfriendly (Ex. xii. 36). The Israelites therefore did not leave Egypt unprovided for, but amply supplied with necessaries, luxuries, and valuable ornaments, vessels of silver and gold, all practically an equivalent for their hard-earned wages, and an ample provision for the journey before them; for He "gave the people favour in the sight of the Egyptians, so that they lent unto them such things as they required" (Ex. xii. 33-36). And amongst other things they got what was of the utmost importance for this vast multitude on a long march, namely raiment, and of still great import, food, in the shape of flocks and herds "and very much cattle." No horses are mentioned, for a reason already given. But for their immediate use they had dough; their kneading troughs being bound up in their clothes upon their shoulders (Ex. xii. 34).

The Exodus having been at length permitted by Pharoah, the tribes assembled from all parts of Goshen, either at Rameses or Succoth. "In the self-same day the Lord did bring the Children of Israel out of the land of Egypt by their armies" (Ex. xii. 51). "And the Children of Israel went up harnessed

out of the land of Egypt" (Ex. xiii. 18). This clearly means, not that they left on horses or chariots or in battle array, but that they left in an orderly, leisurely manner, families marching with their own tribes, and these going in definite order. It was no flight or panic; nor did they leave as a disorganized mob. Moses was the master-mind in effecting all this. And the benefit of the soldier-training of his younger days; and the wisdom of his early Heaven-appointed and God-directed military education as a victorious Egyptian general was now apparent. This was no doubt intentional and anticipative. Now he could utilize what at the time appeared to be a waste of time, talent, and energy. The Hebrews were scattered over Goshen and lower Egypt. He had suddenly, in one night, to inform, collect, arrange, and march his unwieldy multitude of untrained men, women, and children, with all their belongings, out of Egypt, the land of their bondage; all as pleased to go as the Egyptians were to have them gone. Their camp was arranged by Moses; and the same arrangement, doubtless improved upon as they progressed, was continued for about a year, until the tribes arrived at the base of Mount Sinai; during which period they had camped at twelve places. Five of these, namely, Rameses, Succoth, Etham, Pi-hahiroth, and Migdol, were on the western side of the Red Sea. The remaining seven, namely, Marah, Elim, Red Sea, Wilderness of Sin, Dophkah, Alush, Rephidim, were on the east shore of that sea. Even a talented and Heaven-aided general like Moses required time and patience to make the camp completely satisfactory; and, especially with such an unruly assemblage, he might fail in some, perhaps in many things. And no doubt he did fail. Having shewn practically, by an entire year's experience, not only the Hebrews but their enlightened and meek leader also, how very far from perfection they were, that they could not, even in this act for themselves, so well as he could, and how much they would have to depend on Him in this and many other things God once again came to guide the Hebrews' education. As with their water supply and their food; so with their camp. This did not satisfy Him fully; it was human, and therefore imperfect. Had it been satisfactory no change would have been made. The Deity therefore counsels Moses, and reveals how to make a faultless and pattern one, thereby revealing the weak points of the old plan; and also how to move it when necessary. As with their spiritual, moral, political, and hygienic instruction, so the Deity guided and taught them such physical matters as they required and as He saw fit. They now required a health-preserving camp. That of Moses, during the first twelve camps from Egypt to Sinai, evidently was not; or it was faulty in other

respects. Scripture gives no description of it, so the fault or faults will ever remain unknown; and the camp of Moses cannot be described, even if we desired. Our interest is therefore centred in the second or Sinaitic camp, planned by the Divinity. But here again the early military education of Moses was beneficial; as it was his duty and privilege to carry Jehovah's design into effect. The fore-ordained soldier training of Moses was now of the utmost value, and indeed indispensable; as it was during the frequent campings and changes of camps of the subsequent thirty-nine years' wanderings. A mere civilian would have been incapable of marshalling and disposing of the tribes and their tents as Moses did; or of moving these judiciously from place to place, even according to plan. The oft-unruly Israelites would more easily and intuitively recognize and obey a trained master and born-organizer, and commanding leader of men like this; and one whose power and authority they had already so clearly seen, not only during the never-to-be-forgotten ten plagues of Egypt, but by the wonderful miracles that had happened since, in all of which their leader took such an important part. The first change of arrangements from the human or Mosaic to the Jehovistic plan was doubtless during the first march from Sinai to Kibroth-Hattaavah; and continued during the subsequent thirty-eight campings and marches (Table 17). The monumental history of the Wanderings, as furnishing proof of human depravity and ingratitude and of Divine love and mercy, is out of the scope of these pages. But their frequent murmurings and rebellions are briefly and pathetically told in Psalm cvi.; and forcibly contrasted with God's mercies in Psalm lxxviii. One important result of their conduct, the incident of the spies, whose report and Divine providence they equally mistrusted at Kadesh, was to stop their immediate entry into Canaan and materially prolong their sojourn in the Wilderness in which they were compelled to make a long detour (See Map), necessitating many additional changes of camp, making a long and circuitous, instead of a short and straight journey to their goal, the promised land of Canaan, and a long instead of a short history of their travels and trials in the Arabian Peninsula. After receiving that wonderful educational series of codes the Mosaic law, and having marred their prospect of a speedy settlement in Canaan, and necessitated further tuitionary trial in the Desert; it was clearly presciently wise and thoughtful of Jehovah to give the Hebrews the plan of a healthy camp. For even during the comparatively brief period that lay between Horeb and Kadesh, and still more during the far longer period between Kadesh and the crossing of the Jordan, an insanitary badly planned and regu-

lated series of camps, in which each family and tribe located and acted as they pleased, might have decimated the Hebrews and thus led to their detriment, deterioration, defeat by foes, and perhaps their ruin as a leading nation; certainly to their discredit as an exponent and example of sanitary science and hygienic methods. The Divine forethought prevented and forestalled this by special legislation for sanitarily-untaught mankind, and thus gave a plan that cannot be improved on, as a model for all time. Moses was unequal to the occasion, for besides his imperfect knowledge of camp sanitation, he was harassed by care and overwork in ministering to and handling this huge mass of human beings, consisting largely of women and children unaccustomed to camp rules, discipline, order, and regularity and apt to act as will prompted. Jehovah comes to his aid. Moses as usual takes no credit. For every chapter of God's instruction begins "and the Lord spake unto Moses saying" (Numb. ii. 1); and sometimes, as in this instance, Aaron shares the honour. These instructions are very explicit and minute. Nothing is forgotten or omitted. Everything was formulated and laid down to law, like all else connected with that model and missionary nation, the Hebrews, meant to enlighten the world. How marvellous the order and detail given, in proof of a thorough mastery of the subject. But, after all, how trivial comparatively would all this seem to him who both constructs and marshalls worlds in myriads.

The directions for the arrangement and reconstruction of the Hebrew camp after the Divine plan were given to Moses from the usual place and oracle, the Tabernacle of the Congregation, immediately after the first numbering (Numb. ii. 1). That is from the Tabernacle and dwelling-place of their heavenly leader who was to "walk among" them (Lev. xxvi. 12); the spot over, against, and round which, as a focus, the different tribes were to be settled in fixed and definite order. Moses, with his military education and former experience as a camp designer, would at once perceive the skill displayed in Jehovah's new plan, and be fully able to put this into working order at the shortest notice in true military style. Perhaps the people were at first equally appreciative of improvements. The lengthy sojourn in the Desert about to ensue; and the introduction of a complex sacrificial ritual of great sanitary as well as spiritual importance, made the perfection of camping of the utmost value. And the distrust and murmuring of almost the entire camp at Kadesh not long after the camp was reconstructed, still further increased the necessity for a model camp. For this event was of great sanitary import in the history of these earlier Hebrews, which it is well to remember. Thus:—

1st. They were deprived as a nation for 38 years longer

from entering and taking possession of the "promised land," with its cities ready built and highly cultivated very fertile land, over which they might spread and live in comfort and plenty and health.

2nd. They had to wander from place to place and camp to camp in the comparatively desolate wilderness; over re-trodden ground, till at last they became "discouraged because of the way," and weary of its sameness; mentally depressed and unsanitary.

3rd. Everyone of the rebels and doubters was debarred from entering Judea. All of them died from one cause or another in the Wilderness during these 38 years wanderings. This necessarily made the Hebrew camp, notwithstanding its model character, a sad one, owing to the frequent deaths that must have afflicted every tribe and almost each family; as will appear from the following table of the census, taken shortly after leaving Egypt, and 38 years after, just before entering Canaan, proving that each tribe lost many men and that the total decrease amounted to 1820 combatant men of 20 years old and upwards. In some the decrease was very great, especially in Simeon, Ephraim, and Gad. In Simeon it was enormous and nearly one-third of the tribe. In most of the tribes there was an increase. The Levites had also increased somewhat, viz., by 727 men. These reductions were of course obliterated by the births. But these were not so large as they would doubtless have been but for the Hebrews' sin at Kadesh; or at all comparable to the increase in Goshen. All but only a few of the originals of the Exodus had died ere Judea was reached (Numb. xxvi. 64-65).

TABLE XXVI

Census of the Two Numberings of Hebrews of the Wanderings.

Men 20 years old and over.	Census (Numb.; Ex. xxxviii. 26).	Census (Numb. xxvi.)	Increase or Decrease 38 years after, just before entering Canaan.	
Reuben - -	46,500	43,730	-	2,770
Simeon - -	59,300	22,200	-	37,100
Gad - - -	45,650	40,500	-	5,150
Judah - - -	74,600	76,500	1,900	
Issachar - -	54,400	64,300	9,900	
Zebulun - -	57,400	60,500	3,100	
Ephraim - -	40,500	32,500		8,000
Manasseh - -	32,200	52,700	20,500	
Benjamin - -	35,400	45,600	10,200	
Dan - - -	62,700	64,400	1,700	
Asher - - -	41,500	53,400	11,900	
Napthali - -	53,400	45,400		8,000
	603,550	601,730	59,200	61,020
Total decrease - - - -		-	-	1,820
Levites from 1 month old	22,273	23,000	727	-

This great mortality and lessened increase in the census numbers may appear to indicate exposure to more unsanitary conditions of the country or camp. But it does not really; as the deaths were doubtless and purposely due not to ailments arising from unhygienic camp conditions or to infantile diseases and those of childhood and youth, but mainly to non-contagious and non-infectious ailments, more peculiar to adult men, hastened and aggravated no doubt by punitive Divine intervention (Ps. lxviii. 20). They were punished by a more or less premature and early death. But for their sin they would have been longer spared and kept from such deadly ailments, and the plagues, fiery serpents, and other morbific punishments they encountered. Their individual longevity would have been increased and kept up to the normal standard of earlier days by their healthy nomadic life and environment. This is proved by the decimation affecting the most wicked and rebellious tribes; *e.g.*, Simeon, Reuben, Gad, Ephraim, and Napthali. It is not always over care of health or over sanitary environment that makes or mars health.

4th. They had been saved from slavery and threatened slaughter, both individually and as a nation: and now, anticipating a speedy and happy settlement in a pleasant land, figuratively flowing with milk and honey, the prospect was rudely dashed. This shews what a loss of Divine favour and resulting disease and disaster may soon inflict on a nation. Decline and ultimate extinction may ensue.

5th. Instead of peace, plenty and comfort, they had to continue the monotony and discomfort and frequent change of camp life: this, under the best of circumstances and even when voluntary, is especially apt to depress and lead to indifference to sanitary measures and ordinary precautions of health.

6th. All of these agencies were clearly unhygienic, mentally, morally, socially, and physiologically; and apt to lead in various ways to impaired health. Under the circumstances it was obviously judicious in the Supreme that they should be kept under the most perfect sanitary conditions in every respect, public and private, and especially that the sanitation of that which equally affected all, namely, the camp, should be as perfect as possible with such a wayward and rebellious people as the Hebrews had already proved themselves to be.

7th. This new detour and extension of their desert probation were mainly meant to be not only correctional and punitive but also tuitional, spiritually, mentally, morally, socially, and politically, as well as sanitarily. It taught the lesson that not only their individual and national life and prosperity depend on the supreme alone: but also that which every human being should know, and that it is to his or her eternal detriment if they do not find out; namely, that Man, the creature, should implicitly love, trust, and obey God, their creator, preserver, and father; and that punishment is sure to follow if they do not. Loss or abbreviation of health and life and strength, individual and national, may be and often is a part of this punishment, and to this an indifferent or neglected personal and public hygiene may help to lead; as it possibly did in this case, to aggravate and hasten the result.

This prolongation of their camp life, unforseen by the Hebrews, was doubtless anticipated by the Divine Hygeist, who had made man free agents, and had already discovered the perversity of this section of the race. This adds to the import-

ance of His having planned and ruled that their camp arrangements and its sanitation should be both well cared for and enforced by their leaders.

The Hebrew camp was admirably arranged by the Divinity, not only:—

1st. Physically and strategically for security and defence in the event of war: according to the variable strength and fighting qualities of the different tribes.

2nd. But also socially, according to the duties and age of the combative and non-combative components of the congregation.

3rd. And also educationally as a safe school, spiritual, moral, social, mental, physical, and sanitary for this meant-to-be model and missionary nation.

4th. As well as sacerdotally, the safest place was assigned to Jehovah's dwelling, the temple; next to this camped the unarmed, non-combative and peace-teaching Priests; next to these no doubt the women and children; then the fighting males and their families.

5th. It was also arranged hygienically according to Divine, *i.e.*, perfect and the most approved sanitary principles, so as to secure the highest health, both individual and national; as well as to teach the Hebrews and other nations, and through them the world at large and for all time, some of the deepest lessons of sanitation, available alike for camps and more permanent communities.

This camp arrangement is therefore worth study from a sanitary point of view, and in some detail; because, like all else regarding early Hebrew history, "all these things happened unto them for ensamples, and were written for our admonition upon whom the ends of the world are come" (1 Cor. x. 1-11). This, written by Paul to the Gentiles, not to the Hebrews, clearly applies to modern times. How much and how long Jehovah's superlative health hints are neglected is again seen in this. For does not even modern and still more medieval and ancient civilization, so-called, Eastern and Western alike, still live in small, narrow, crooked streets, cramped towns and villages, ill-ventilated, drained and lighted; in marked contrast to the still too few more rationally and sanitarily built and managed modern ones; and still greater contrast to the excessively clean, well lighted, ventilated, and arranged Jewish camp of the Wanderings? And we have to thank the double Hebrew census for certain valuable lessons and results. Thus:—

1st. It promoted attention to the family register.

2nd. It distinguished the pure Hebrews from the mixed families.

3rd. It tended to prevent intermarriage and admixture with idolatrous neighbours, and resulting deterioration of the original and selected stock.

4th. It shewed the Messiah's lineage.

5th. It gave the Jews and their leaders a true insight into the strength or weakness of the different tribes, and their comparative ascendancy, or the reverse. Statistics of this sort are sanitarily important.

6th. It shewed the true source of this: and proved that something more potent than the best of sanitation, even if this is strictly Divine, as in this instance, is necessary to make a nation, tribe, or family increase or decrease; and that for this and prosperity our own human efforts and will do not fully suffice, while the heavenly blessing is not only necessary but all important. What disaster, disease, or loss of Divine favour may accomplish on a nation and on certain tribes is fully shewn by the social history of the Hebrews during the 40 years wanderings. In Goshen by Divine aid, although their sanitary environment was far from perfect, they increased rapidly and enjoyed perfect health. After Kadesh, with the aid even of Divine sanitary supervision, but clouded by Divine displeasure, they rapidly diminished in numbers; which might have ended in their utter extermination if they had not had yet the Divine mission to perform; to give the world a Saviour, and to prove the result of wasted opportunities and neglected Divine advice and aid.

1. The Pentateuch gives no account of the *size* of the Hebrew camp. Of course this was in accordance with the population; and may only be roughly guessed at, as this was over two millions. Camps are not usually so compact as cities. It must have been pretty much the same in size all through the Wanderings. For though the Hebrews numbered 1,820 men fewer at its close, their cattle, originally numerous, no doubt had increased materially (Numb. xxxii. 1), and spread the outskirts of the camp. All along the camp must have been very large, and more extended than any modern or ancient city. The Hebrews were accustomed to plenty of room in Goshen. In the flat, dry desert they had an abundance of room; especially as it was then as now sparsely settled, and only by nomadic tribes. The Hebrews could thus spread out

on all sides without detriment to other tribes. At the same time this tendency would be minimized judiciously by Moses to prevent contact, friendly or hostile, with these strangers whom Jehovah desired them for many reasons to avoid; because thereby they would inevitably become contaminated and deteriorated; and their spiritual, moral, social, and body health and hygiene thereby suffer and perhaps be wholly lost.

2. Like their cities and villages subsequently, the Hebrew camp of the Wanderings and also those of the Israelites and other tribes in subsequent Judaic days was usually placed on *high ground* when this was attainable. For example, that of the Israelites at Mizpeh (Judges x. 17); that of the Amorites in Gilead (Judg. x. 17); that of Saul and the Philistines in Gibeah and the pass of Mickmash (1 Sam. xiii. 2-3; xvi. 23). The camps of Israel and of the Philistines, who witnessed the David and Goliath battle, were on either side of

TABLE XXVII

Hebrew Camp, Position, and Numbers of the Tribes

	Inner cordon of Levites	Outer cordon the 12 Tribes		
East side	Moses, Aaron and Sons (Priests)	Judah	746,00	186,400
		Issachar	54,400	
		Zabulun	57,400	
South side	Kohathites 2750	Reuben	46,500	151,450
		Simeon	59,300	
		Gad	45,650	
West side	Gershomites 2,650	Ephraim	40,500	108,100
		Benjamin	35,400	
		Manasseh	32,200	
North side	Merarites 3,200	Dan	62,700	157,600
		Napthali	53,400	
		Asher	41,500	
	8,600 Males of 1 month up			603,550 Males over 20
Total of men women and children over 2,000,000				

the valley of Elah (1 Sam. xvii. 31); and so on through Joshua and Judges. This was no doubt mainly for strategic reasons. But it had its sanitary aspect. It was healthier than the valleys and the air purer.

3. As a whole the Hebrew camp had the *form* of a quadrangle or parallelogram corresponding more or less to the shape of the Tabernacle, placed for honour and safety in the centre, the usual site for the tents of Oriental monarchs, generals, and chieftains in military or pastoral camps. This focus or rallying place was useful from several points of view; as its exact position could be seen from afar by the shekinah or visible sign of Jehovah's special presence, which took the form of a pillar of fire by night and a cloudy pillar by day (Ex. xl. 38); supernatural manifestations which first appeared when the Tabernacle was finished, and the glory of the Lord filled the Tabernacle, so that Moses was not able to enter the tent of the Congregation (Ex. xl. 34-35). Moses had no banner or flag. These pillars supplied the place of one. Jehovah was the leader both of Moses and the Hebrews. As He forms the centre round which His mighty creation doubtless revolves, so here He formed the focus round which His chosen people camped.

The Tabernacle being four-sided, it was surrounded by a double cordon of tents; the inner being the unarmed non-combatants, or Moses, the Priests and Levites; the outer being the combatants or twelve tribes; the whole arranged as in table, and still better seen in diagram (plan). Three tribes thus camped on each of the four sides of the Tabernacle; the van or post of honour being given to Judah, the largest and bravest, who camped outside of Moses, Aaron, and the Priests, on the east side and opposite the door of the Court. Conjoined with Judah and its 74,600 men fit for war, were Zabulun with 57,400 and Issachar with 54,000: thus making a grand total for the first or chief grand division of 186,400 men fit for war. On the south side of the Tabernacle were the camp of Reuben, with 46,500 men, flanked on one side by Simeon with 59,300, and on the other Gad with 45,650; making a grand total for the south side of 151,450 combatants. On the west side camped Ephraim with 40,500, flanked by Benjamin with 35,400 and Manasseh with 32,200; making a total for the west side of 108,100 men. On the north side was centred the Danites with 62,700 men, flanked by Napthali with 53,400, and Asher with 41,500; making a total of

157,600 men fit for war. The sum total of men over 20 years of age and fit for war on the four sides of the Tabernacle and the camp was thus 603,550 men. Of these possibly the younger men and unmarried camped outside, and the married with their wives and families inside, *i.e.*, in a place of greater safety; but minuter details of this kind are not given. The place of honour in the considerably smaller inner cordon of tents was occupied by Moses, Aaron, and the Priests, who camped in front of the door of the Outer Court of the Tabernacle. On the south side of the Tabernacle the Kohathite branch of the Levites camped with 2,750 men: on the west side lay the Gershonites with 2,650 men: and on the north side the Merarites, with 3,200 men; thus making a total of 8,600 Levites in the inner or ecclesiastical circle; these being males of one month up (Table 27). The outer circle of combatants protected the women, children, and the inner circle of leaders, sanctuary Priests, and Levites; who took down, carried, and put up the tents, furniture, and baggage when moving camp. The grand total of men, women, children, and Tabernacle employees and the attendant mixed multitude who probably camped in the outskirts, was over two millions of souls. This great cloud of witnesses is surely as competent to prove the veracity of these facts and figures and everything else chronicled in the Pentateuch regarding the camp and its central Tabernacle; as they are to attest the actual occurrence of the ten plagues, the passage of the Red Sea, the delivery of the law at Sinai; and the long and wonderful story of the rebellions, plagues and general life of the Hebrews during the Wanderings. What jury would disbelieve such a united and incontrovertible mass of evidence?

The Hebrew camp invariably took this shape according to Divine law (Numb. ii.), and was identically arranged on moving, according to families, tribes, and standards. Thus each individual could at once and easily locate or find his own tribe or tent. The Pentateuch gives no minuter details. But can we doubt that, even if Jehovah did not order Moses, or the leader himself initiate, by acting on the Jehovistic hint regarding the camp as a whole; the former general did not make each tribe camp in the same regular plan as the larger general camp, with system and symmetry; so as to judiciously leave sufficiently wide roadways and passages between the outer circle and the Tabernacle; between the different families of the inner circle themselves, and the outer circle; between the different tribes of the latter and their sub-divisions and families. Those might have led concentrically to and from the central Tabernacle. But more probably both the wider streets between the Tabernacle and inner circle and the latter and outer circle

ran parallel with the sides and ends of the sacred edifice. While the minor streets and cross alleys that separated the tents of the different individual tribes ran in the same direction; the entire camp being thus planned on the parallel principle. So that thus and thereby easy access could be attained to and from every part of the camp and its outskirts. A crowded, irregular and unsystematically placed host of tents, with narrow crooked alleys between, such as the people would have made had they been left to their own devices and will, and such as Moses possibly permitted them in some measure to make before the law of the camp was regulated by Jehovah, would have been fatal in case of battle or fire. Such zig-zag roadways or lanes would have been unwise and unfitted for social intercourse; for easy access to and from the Tabernacle for worship and sacrifice; or again for exit to its outskirts for recreation, agricultural, pastoral, funeral or cleanly purposes, affecting the person, tent, and Tabernacle alike. Wide, open straight streets, whether of primary, secondary, or tertiary size, are of vast importance from a sanitary point of view. Sanitation was a material, nay, vital, factor in the economy of the Hebrew camp as designed by Jehovah; and systematic location of tribes and families and tents was a most material factor in this busy, bustling crowded Hebrew camp; with its unceasing tabernacle-worship and sacrifice and crowds of men, women, children, and animals constantly resorting thither, or people and Priests wending their way therefrom, laden with sacrificial refuse, to be deposited outside the camp, and that had to be carefully carried lest the camp or tents should be soiled or the people and Priests or Levites defiled.

Every man in the Hebrew camp had to pitch his tent by his own standard and ensign of his father's house, after their families for ever against the Tabernacle (Numb. ii. 1). There are various opinions, but nothing definite regarding these ensigns of the Hebraic tribes. Presumably they were different; and each had his own variety, which no doubt was distinctly displayed and visible over the entire camp. Not only was the camp but also the host of Israel fully organized, and had a regular gradation of offices and officers. This ensured strict order, regularity, and military organization; the whole being superintended by their great leader Moses. Each tribe had its princes and captains, all chosen by Moses (Deut. xxix. 11); and doubtless subordinate grades also, to marshall, command and drill the 603,550 fighting men to fit them for encountering the hostile tribes through whose locality they had to pass, and who occasionally opposed their progress, *e.g.*, Sihon King of the Amorites at Jabes, the Kings of Bashan at Edrei, and so forth. The Priests and Levites also had their special

camping ground and allotted duties; and took a prominent part in the march of the Host of Israel (Numb. x. 8). Their organization for Tabernacle and allied duties was also thorough and systematic (see Tabernacle, Chap. 19, Vol. 2). Slaves and perhaps the mixed multitude were hewers of wood, carriers of water, and performed the dirty and heavy camp work.

The Hebrew camp in whole and in detail was thus planned with a view to carry out the purpose for which it was intended, namely, to be a model and healthy habitation for the Hebrews. Wide, straight, open, and not narrow, crooked streets, well-lighted and ventilated, and easily kept clean, are of the utmost importance for health in any large community in proportion to its size and density of population; no matter what the nature of that community may be. Because thereby insanitary effluvia and dust, dangerous to respiration, are readily and speedily carried off. Wide, straight streets are of the utmost importance if the community should be a commercial and especially if a manufacturing one. Also if the camp is purely or mainly military, and consists chiefly of men and the munitions of war; the former requiring to have the very best of sanitary conditions. The Hebrew camp was none of the former two and only occasionally and perforce the latter. The Israelites were mainly, 1st, a *social* community and comprised many tender women and children, easily influenced by sanitary agencies or the reverse, and of men; all mainly accustomed to country not to crowded, jostling camp life. 2nd. They were largely an *ecclesiastical* community; one whose religious ritual required much cattle traffic and the sacrifice of large quadrupeds, apt in various ways to soil and render the camp dirty, odoriferous, and unsanitary, both in entering the camp, during, and after cremation. 3rd. It was an *educational* community, brought together and isolated to illustrate and inculcate hygiene and sanitation of every kind, soul-hygiene or religion, heart-hygiene or morality, and body or health hygiene. Nor was the latter deemed of trivial import by the Divine Sanitarian; who knew and made it one, but yet a most important factor in making or marring human health. And it would clearly have been a vital mistake had the Deity inaugurated or sanctioned the lesson of having narrow winding or irregular alleys and streets in the camp to mark and isolate the different tribes and families, as these might and would possibly have failed to keep the Hebrews healthy. 4th. The Hebrew camp was, at least when God's laws and precepts were fully obeyed, and the people acted wisely and rightly, a peaceful Godly community; where Jehovah reigned supreme, and the people lived happily, employed in pleasant household duties, genial work, and, above all, engrossed in the worship of God, who led,

watched over, and would fain have educated them up to His high standard had they permitted Him, and made them from every point of view a model and missionary people: and who accordingly organized them mainly so as to inculcate the happiness and benefits of love, purity, and holiness to Him in our individual, family, and national life. Viewed from a modern standpoint, therefore, the plan of the Hebrew camp, not only as a whole, but of its different tribal sub-camps, was on the most approved scientific and sanitary principles; as might have been expected. This was one of the most potent factors in making and keeping its salubrity. But there were various other hygienic agents that also largely contributed to this.

4. The judicious and sanitary form, plan, and arrangement of the camp and its different sub-camps; which combined roominess, comfort, regularity, and system, also aided another most important factor in sanitation, viz., *ventilation*. Practically, this means the removal of foul and substitution of pure air in its place; in short it is the constant renewal of pure for contaminated air for human respiration. The separation of the great camp into different sub-camps, according to tribes, with intervening streets, and the formation of two cordons of camps with intervening spaces between these and again between the inner cordon and the Tabernacle, clearly facilitated this healthy renewal of air and the removal of contaminated air from the numerous tents. No matter from whence the wind blew, from east, west, north, or south, it played freely along the straight and wide avenues and wafted morbific odours or gases away in a manner that narrow, crooked lanes would not have permitted. If it was calm, wide lanes permitted the heated, impure air to rise more freely, to be dispersed overhead. The life of the Hebrews would be largely spent in the open air; and when indoors the very open, moveable, and open-textured tents and doorways would permit a constant easy removal of impure air, such as more solid dwellings would not have permitted. It is this shelter, combining great purity and easy renewal of air, that makes tent life so salubrious, where mildness of climate permits of its indulgence. The emanations from the people themselves and those from their cooking were almost the only sources of air contamination in the highly salubrious, dry, and warm atmosphere of the Arabian peninsula.

5. The arrangements to keep the camp clean were highly judicious and practical as well as numerous. And it

is well to re-iterate and remember that cleanliness in all things is the great and fundamental base fact of all sanitation. And equally necessary to recollect that cleanliness of air, water, tents, earth, clothing, food, or the uncleanliness of these are all communicable. Thus a soiled tent or street may or will contaminate the individual, his clothing, food, drink, and the air he breathes. This one example will suffice. Hence everything should be kept pure and clean if we would maintain health, strength, and long life, and ward off disease. Even the minutiæ of cleanliness were attended to in the Hebrew camp. The Divine Sanitarian omits no item as beneath notice. Nothing is forgotten or half done. He recognises and teaches that health is maintained and disease warded off by a combination of sanitary factors, even minute ones.

a The accumulation of camp *refuse* was strictly forbidden. One of the most difficult problems in the sanitation of cities and indeed all communities is the prevention and minimising of what are not inappropriately called filth diseases, which attack and kill rich and poor, high and low, alike, and have a common origin in the putrefaction of refuse: such as typhoid, typhus, diphtheria, and many others of the contagious or exanthematous (rash) class. These arise chiefly from the accumulation, retention, and putrefaction of ordure and refuse of similar nature and of animal and vegetable debris. This danger makes the speedy removal of this refuse before it has time to putrefy and germinate bacteria or microbes, a matter of the utmost importance. Hence the necessity for drains and drainage; and need that this should be efficient, especially for the instant or speedy removal beyond danger of those kinds of refuse, the human, which are most dangerous, because they putrefy most speedily and strongly, and are thus apt to be most morbific. How did the Supreme Sanitarian meet this difficulty, that of preventing putrefaction of morbific deposits in the Hebrew camp? Simply by doing away entirely with the necessity for drains and sewerage; by the expedient of not permitting such deposits to be made at all.

Clearly if no dangerous refuse was deposited there could be no decomposition and no generation of disease-causing gases, germs, or bacteric microscopic life. The Deity knew the entire process of disease generation; and also how to obviate it, not by opposition or cure after it had occurred, but by prevention. "All things are open and naked to the eyes of Him with whom we have to do" (Heb. iv. 13). Such a plan as this was clearly practicable in a not overgrown camp and a not over-busy people like the Hebrews then. But it would be impossible in very large cities. The fact is merely recorded to shew that the Deity deemed this a matter of such import that he would not permit even the chance of putrefaction and disease; thus pointing out that the plans and apparatus for preventing or at least lessening those at the present day by drainage should be thorough and effective. In the Hebrew camp no drains, gutters, cesspools, garbage heaps were permitted; nor could these and their putrefactive emanations pollute air, water, food, clothing, tents, or household utensils and furniture, until disease, perhaps widespread, was generated: as too often happens even yet in modern life. The Hebraic camp law is given thus: "Thou shalt have a place also without the camp whither thou shalt go forth abroad: and thou shalt have a paddle upon thy weapon: and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith and shalt turn back and cover that which cometh from thee" (Deut. xxiii. 13). This law implied the deposit of refuse far beyond the people, and even there its speedy chemical decomposition and removal of danger by one of the speediest, surest, safest, and therefore the best of all disinfectants, common earth. To still further minimize the danger by avoiding concentration, possibly each tribe had its own place closer at hand, but still well beyond the camp, where the sanitary danger would be small. This gives an additional and sanitary clue to

the reading and the reason given for this law. "For the Lord thy God walketh in the midst of thy camp, to deliver thee, and to give up thine enemies before thee; therefore shall thy camp be *holy*; that he see no unclean thing in thee, and turn away from thee" (Deut. xxiii. 14). The "enemies" here alluded to, that we as well as the Hebrews have to encounter, are not only or always human beings, but spiritual and moral powers of evil, and also and very frequently, cunning, hidden, yet fierce pathological foes and diseases. And with the latter, as with the former, the Divine Sanitarian aid is invaluable. Holy, thus includes and denotes the removal of that which is offensive to God in material and medical as well as in spiritual, moral, social, and mental things. This law of human cleanliness prevented indirect and highly dangerous soiling and impurity of the air the Hebrews breathed, water, milk, wine, and other beverages they drank, food they cooked, and so forth; and through these the inception of much disease and its various outcomes; and was one of the most beneficent and wise of all the sanitary laws made by Jehovah for the welfare of the Hebrew camp.

b To this the most prominent item of cleanliness that formed one of the most important factors in the public sanitation of the Hebrew camp; and that influenced so materially, though indirectly, the cleanliness of clothing, tents, &c.; and hence added to the healthiness of the camp; was superadded the exacting and strict ritual that for so many causes, social, physical, medical, and otherwise, compelled frequent washings, ablutions, and cleansings of the body, clothing, furniture, &c.; that could not be carried out without adding to the public and private health of the community. This sanitary factor of excessive cleanliness extended with still greater strictness and frequency to the Levites, Priests, and High Priest, and to the great human leader, Moses, and their families. These were both instructors and exemplars of sanitation.

6. Certain strict laws regarding disease would also add their quota to the sanitary perfection and health of the Hebrew camp. Thus, the compulsory, instant, and periodic reporting and inspection by medical priests of the suspected or the ailing with certain maladies, *e.g.*, leprosy (Chap. 32, Vol. 2), issues (Chap. 35, Vol. 2); childbirth (Chap. 33, Vol. 2); to ascertain whether these were real or only suspicious and merely false alarms, would do much in various ways to promote cleanliness of the person, clothing, air, and tents, &c. So it would also by causing these ailing or suspected persons that might communicate disease, to be avoided, for fear also of priestly censure, isolation as "unclean," and perhaps banishment from the camp, and subsequent sacrificial penalties. Medical treatment was no doubt superadded to this sanitary inspection to supplement its beneficent effect on the general health of the Hebrew camp.
7. So also the isolation of lepers, and of others afflicted with contagious diseases or during certain physiological conditions, and confinement, either to their own tent or banishment beyond the camp till cured, would go far to promote similar ends; and would aid the general sanitation and salubrity of the camp; as it would also promote private cleanliness, the personal care of health, purity of clothing and individual property; purity of the atmosphere, tents, food, drink, &c.
8. Certain points in the Hebrew ritual would aid the same benign end. Thus, isolation till evening or banishment out of the camp for other forms of "uncleanness" than those of disease. Inasmuch as this would both compel and inculcate personal cleanliness, and thereby aid that which is public, it would furthermore inculcate the necessity for the constant care of health; the avoidance of disease; and would shew the means necessary to effect these great and important objects.
9. The slaughter of animals for *food*, which was permitted in the camp, whereas those killed for sacrifice could only be slain in the appointed place, near the door of the Tabernacle, would seem to be another item calculated to interfere somewhat with cleanliness, purity of air, body, clothing, tents, streets, &c., unless proper precautions were taken. But:—
   a Probably the animals killed for cooking were few and occasional; as the Hebrews were largely vegetarians. And, moreover, had

flesh (quails) in abundance, without having to draw from their flocks and herds.

b When animals were killed for food, although the matter is not alluded to in the Pentateuch, the law regarding the instant and thorough removal of the blood, skin, and other debris, was no doubt as strict as that made for the cleanliness of the Tabernacle from the same cause (Chap. 19, Vol. 2). This would necessarily reduce the sanitary danger of pollution of soil, clothing, tents, bodies, air, &c., to a minimum; as the great danger lay in the occurrence of putrefaction, which was thus prevented.

10. The burial of the *dead* outside, and no doubt well beyond the camp, and the consequent absence of one or more graveyards round or near the Tabernacle or elsewhere in the camp, was an evident and material aid to health and a potent preventive of disease, by avoiding pollution of the air, water, food, &c., by morbific products, fluid or gaseous. It would have been a great mistake and decidedly unsanitary and unsatisfactory to permit the depressing effects usually associated with proximity to the dead and to their last resting place, to mingle with and interrupt or lessen the soothing and benign influence of religious worship and sacrifice each time the devout resorted to the Tabernacle.

11. As the Hebrews, who were increasing marvellously in Goshen, and had the whole Wilderness over which to spread if necessary, had their camp judiciously planned and regulated for them by the best of all and only incomparable sanitary expert, so as to promote cleanliness and ventilation, two universal and very potent health factors; and as there was, comparatively speaking, no material increase required in the size of the camp, because of the slight increase of the population; there was necessarily no need for *overcrowding*; nor, doubtless, was this either permitted or even thought of. Had the tribes generally increased as rapidly during the Wanderings as they did in Goshen, they would have required far more tent space year by year. No doubt this would have been on the outer and not the inner outskirts of the different camps. But overcrowding could scarcely occur, as the increase in the size of the camp of over two million of souls was only to the extent of that required for

1,820 fewer men and 727 more Levites. The prolonged stay in the Wilderness did not therefore materially increase the camp; or initiate an increasing danger of overcrowding and consequent insanitary conditions; such as are familiar in many over-populated places, especially in the poorer parts of these; and such as are especially frequent in Asiatic Cities.

12. Although the Pentateuch chronicles many lapses, the usual strict *morale* of the people, at least when these were in their most religious and most amenable mood; and the careful attention they paid to God's laws of health; that were then being both taught and enforced with a view to their learning and then propagating them; would tend to promote health, prevent disease, make and keep the camp and congregation strong and sanitarily sound. It would be out of place here, even were it possible to condense, how strict compliance with that code which, though styled the *moral* law, is in reality far more, inasmuch as it is of spiritual, social, civil, criminal, and political import; and therefore formulated to influence the health of the body and its hygiene as well as those of the soul, mind, morals, and the home of that curious, many-functioned being, Man; in and of whom one department acts and reacts on its fellows so as to produce many results; the mind influencing the soul, morals, and body; each of these again on one another and on all; in a myriad inexplicable and mysterious ways, as well known to the Divine or soul doctor as to the physician or body doctor; and as potent a sanitary factor or an insanitary one on the mass as it is on the individual. The full belief in, acceptance and fulfilment of beneficent laws, given by a Deity of proved and acknowledged power (Ex. xx. 19), and love, could not fail, at least on devout Hebrews, to be otherwise than salutary to individuals, and the lesson highly communicable to others. A strictly taught, cultivated, and enforced morale favours health alike of body, mind, and soul.

13. The devout teaching, and, above all, the good example of Moses, Aaron, the Priests, and Levites, and their strict obedience, as a rule, to the laws of Sinai, including the important, imperative, and punitive laws of health and hygiene embraced in the Mosaic code; would not be lost on the more ignorant and unthinking populace. To these selected, specially promoted, and tribally prominent men, all of unusually sedate

and thoughtful, refined tendencies; and who had been specially indoctrinated in a knowledge of the Deity as the being who is not only the All-wise and Omniscient Creator, but who best knows the requirements of the creature he had fashioned and was still caring for in hygienic as in all other matters. They were men who had often come in contact with the invisible Jehovah; heard His voice, knew His power, and had been the means and agents by which His wonderful miracles had been fulfilled, miracles at once punitive, protective, and saving. They were special men, who were selected and placed to study and promote the hygiene of the Hebrews in its widest sense, spiritual, moral, mental, social, and medical. It was the duty of these officials not only to frequently read, teach, and systematically enforce the Mosaic or Sinaitic law; but also to strictly carry out its different requirements on themselves and their families and tribe. A good example is the best of lessons: and the surest way to inculcate hygiene was to personally indicate their belief in the system of sanitation by a full, free, and hearty compliance with what the Supreme Educator and Sanitarian had dictated as the most philosophic and best mode of preserving health and warding off disease, namely, prophylactic measures for its *prevention*. The Israelites occasionally forgot, and were punished like the rest of men for disobeying ordinary sanitary precautions (Numb. xi. 4); but as a rule we may give their leaders and the Hebrew congregation as a whole credit for fair obedience to the hygienic laws of Sinai; and that in this particular at least they continued to fulfil the voluntary promise made soon after arrival at Sinai, "all that the Lord hath spoken we will do" (Ex. xix. 8). Godliness, gratitude, patriotism, safety, and duty would thus one and all combine to make the Levites, from Moses and Aaron downwards, combine to gladly and fully teach and practise the sanitary laws of Sinai, including the hygienic rules and regulations for their all-important camp. There is no teaching equal to that of a good example; especially if this comes from men of position and honour; imbued with a full belief in the truth and value of the doctrines they inculcated and enforced. The sanitary instructors of the Hebrews had, both tribally and individually, good reason to be zealous in their hygienic teaching; instant in the service of their great benefactor and Divine instructor in

sanitation, Jehovah; and careful to set a good hygienic ideal in their own persons and homes: as an example to the less erudite multitude. Jehovah had made the entire Hebrew nation "a kingdom of Priests" (Ex. xix. 6). But the Levites were honoured by being supposed to be specially holy and exemplary.

14. The establishment at Sinai of their Tabernacle or church, about one year after crossing the Red Sea, and that in the very focus of the camp; and, superadded to this the inauguration of a very elaborate ritual, would not, but for the latter, have initiated any very serious sanitary danger; but would, on the contrary, have been beneficial on the whole to the hygiene of the camp and the congregation by acting as a central lung or open ventilating space. The complex ritual, and especially its sacrificial items, would have been highly insanitary, dangerous to health, and inductive of disease, but for the elaborate and effective hygienic precautions of the Divine Sanitarian to prevent these calamities that would have been so disastrous to a young and struggling nation, by making the hygiene of the Tabernacle very elaborate and perfect, as shewn in Chap. 19, Vol. 2. Those of the judicious sanitary factors of the Tabernacle now spoken of, that influenced the hygiene of the camp beneficially, need therefore be only briefly mentioned in this place. These were:—

a The numerous, frequent, and large sacrifices there made in one and that a circumscribed space, namely, at, in, or near the door of the Court of the Tabernacle on the east side. This regulation, strictly enforced as it was, like every other Tabernacle law, prevented insanitary soiling and dangerous deposits of animal refuse all over the camp; and localized it to one spot, the cleanliness of which was thus more fully under priestly or levitical control.

b The cleanliness of this spot and neighbourhood was, like that of the Tabernacle generally, in charge of the High Priest, Priests, and Levites; and as they and not the people generally, or the worshippers and sacrificers, were responsible, it was sure to be properly and efficiently accomplished, as their honour was at stake.

c All animal debris and sacrificial remains had by law to be at once removed by the Priests and their Levitical assistants to beyond the camp; doubtless to some specified spot, where it might decay harmlessly or be earth-covered, or as sometimes enjoined, cremated. By this wise law the cleanliness not only of the Tabernacle itself, but that of the camp and its streets, tents, inhabitants, &c., was also preserved.

d The strict rules laid down by the Deity for the cleanliness of the staff of the Tabernacle, including the High Priest, Priests, and Levites; especially when on duty; and particularly of their bodies, hands, hair, feet and clothing, clearly promoted cleanliness not only of the Tabernacle itself, but of the congregation and their clothing. No clean worshipper ever came, and left the Tabernacle soiled in any shape or form, to contaminate children, tent, or home; and thereby perhaps invite disease. What better lesson, silent but eloquent and impressive, in the beauty and the benefit of cleanliness, could the Hebrew congregation have than contact with and the good example of cleanly Levites, Priests and leaders?

e As elsewhere explained, the double sacrificial fires of burnt offerings and incense, kept constantly alight, and often increased largely, promoted ventilation, and the constant renewal, cleanliness, and healthiness not only of the air of the Tabernacle, breathed by the crowds of Levites and people; but also aided by uptake and indraught, those of every street in the camp: to the evident sanitary benefit of every person and tent-domicile in the entire camp.

f The employment of incense, ointment, &c., that were highly odoriferous, in the religious ritual, not only disinfected the Tabernacle, High Priest, Priests, and Levites, but also the congregation who came to worship or to sacrifice. While these again would spread the beneficent odour broadcast over the camp, and amongst those who, for various reasons, stayed away, and equally, though in a minor

manner, benefited them by acting as disinfectants or destroyers of disease germs, preservatives from infectious and contagious diseases that might otherwise have occurred, decimated, and weakened the nation; and would certainly have diminished the Hebrew influence and glory as a model and a tuitionary people.

g All of these matters, apparently of religious and typical import only, but really although of only secondary sanitary value, were tuitionary of popular hygiene among the laity; at least among the Godly, the wise, and the better educated, more apt than the commoner people to be led by the priestly orders and more likely to imitate these sanitary lessons, so suggestively put before them.

15. Nor when the public hygiene of the Hebrew camp is studied ought the private or individual hygiene of the people, which amongst them, as in all communities, adds, by combination and addition of factors, to the general result, be entirely left out of the question. The Hebrews were selected, educated, meant to be, and were made as far as they as free agents permitted Jehovah to make them, models in all the more temporal matters that influence the private hygiene of mankind. And with what result? Was there ever camp or community planned so scientifically and yet practically? Or was there ever a people or an army so tended hygienically as was the Hebrew nation during the Forty Years Wanderings? Both in its public and its private nature its every arrangement made the Hebrew camp the most ideal yet practical and sanitarily perfect that has ever existed: and its people the best cared for community that has ever congregated together. Can we doubt that in the attainment of this result the private materially aided the public sanitation, both planned by Jehovah. In this matter the main points deserving of notice, already spoken of more at length under their respective headings, were:—

a Their food, which consisted mainly in miraculously supplied quails for animal and manna for vegetable food; was judicious, appropriate, abundant, regular and healthy. All shared alike.

b Their miraculously-provided water supply from the rock was pure, abundant, fresh, and healthy, for drinking and cooking; and therefore equally adapted for public and private cleanliness.

c The original dry, pure air of the Desert, uncontaminated by malaria or other impurities was kept as pure and healthy as possible by ventilation, disinfection, &c., &c., and excessive public and private cleanliness.

d The Hebrews had left their hard taskmasters behind; and so enjoyed and benefited by their healthy nightly and Sabbatic rest: a potent health factor.

e Their work and exercise in tent, camp, or Tabernacle; among their flocks and herds or in the field or garden, was genial, light, appropriate, hearty, and healthy; and partook more the character of recreation than labour.

f Their minds were at ease; morals well guarded; homes safe; spiritual aspirations aided and guided by trusted leaders, earthly and Divine. So that they should have had and doubtless did have practically no care for the morrow: save when overcome by evil, and discontent, murmurings, rebellion or distrust, brought condign punishment and dismay.

g The strictness with which the Sinaitic law was enforced in its entirety and in its many sub-codes, including the equally inexorable coded regulations so definitely laid down regarding disease and physiological conditions; rules and laws equally applicable to the priesthood and the laity, and correspondingly punished for infraction, were one and all tuitionary and beneficial examples to the common people, then as now, apt to imitate and follow people better ranked, educated, clothed, and titled than themselves.

16. The material difference that exists between the physical features of the "Wilderness" in which the Hebrews were compelled, owing to their own folly, to spend forty years of their life, and the remainder of the days of those who had originally left Egypt; and the great difference in the cultivation and productive-

ness of the Sinaitic peninsula of that and the present day, must also be taken into account as a factor that would materially influence the sanitation and health of the early Hebrews. This factor would more especially affect, 1st, their occupations. These, trades and work of different kinds, are now recognised as potent factors in the maintenance of health, production of disease, aids to or against longevity, and helps or hindrances towards public and national vigour and viability; 2nd, it would also influence their food supply, animal and vegetable, another potent factor in health matters, both personal and public; 3rd, it would likewise influence their important ritual, and thus aid or oppose their social, moral, spiritual and national hygiene. The occupations of the Hebrews of the Exodus would no doubt materially influence their health, mortality, and longevity, just as in modern life. Like the majority of the natives of warm, semi-tropical countries generally, the Hebrews did not then, nor did they subsequently in Canaan lead the active bustling life pursued by the natives of more temperate and colder regions, like ours. No inconsiderable part of their life was no doubt spent in contemplation or thought, and much in listening to learning and applying the newly-delivered and multiple codes, named the Mosaic law, as these were successively delivered. But active work is hygienic and health-giving. A life which is too inert or sedentary or contemplative is insanitary. In order to avert this the Hebrews had certain more vigorous occupations: some of which have been alluded to under separate headings (Chap. 8, Vol. 1). The High Priest, Priests, and Levites had no field labour to perform, and no heavy work beyond that of the Tabernacle and its elaborate ceremonies and ritual. The congregation was levied to supply their wants. But their sacrificial and other duties made their work probably harder than that of the congregation generally. The physical labour connected with the Tabernacle, both when camped and on the march, kept them well occupied comparatively. But this kept them healthy and was highly sanitary. On the other hand the tribes had to protect these, the Tabernacle, women, children, tents, &c.; and to transfer the latter when on the march. But no doubt this essentially pastoral people and race of shepherds, especially during their long stay in certain camps, *e.g.*, Kadesh Barnea (Vol.

1, Chap. 5), found ample time to successfully tend and increase their flocks and herds; the nucleus of which they brought with them from Egypt; when they left which they had "very much cattle" (Ex. xii. 38). No doubt the Sinaitic peninsula in that day contained many other fertile spots and perhaps larger valleys and oases than Elim with its twelve wells and three score and ten palm trees. And perhaps the different Hebrew camps were purposely chosen and fixed by the cloudy pillar; and pitched near the more fertile spots to promote pastoral and horticultural work. Certainly Kadesh Barnea, where they camped "many days" (Deut. i. 46) lay near the upper end of one of the largest of these valleys, the Wady el Arabah, that ran from the Gulf of Akabah northward to continue as the valley of the Jordan. The Jehovistic ban laid on the Hebraic increase did not extend to their cattle. In this they were blest; and they were proficient shepherds like their greater ancestors. Goshen had fostered their proclivity. Some idea of the size to which their flocks and herds had grown, like those of Jacob, under the special Divine blessing and so soon after the Exodus, may be gleaned from Deut. iii. 19, where Moses mentions that the Hebrews had "much cattle": and also from the offerings which the Princes of the tribes had to make at the dedication of the Tabernacle (Table 28). That is about one year after leaving Egypt, when the flocks could not have accumulated much.

TABLE XXVIII

Offerings of the Princes at the Dedication of the Tabernacle (Numb. vii.)

	Name of Prince and Tribe	Burnt Offerings			Sin Offering	Peace Offerings				Totals
		Young Bullocks	Rams	1st year Lambs	Kid of goat	Oxen	Rams	HeGoats	1st year Lambs	
1	Nahshon (Judah)	1	1	1	1	2	5	5	5	21
2	Nethaneel (Issachar)	1	1	1	1	2	5	5	5	21
3	Eliab (Zebulun)	1	1	1	1	2	5	5	5	21
4	Elizur (Reuben)	1	1	1	1	2	5	5	5	21
5	Shelumiel (Simeon)	1	1	1	1	2	5	5	5	21
6	Elisaph (Gad)	1	1	1	1	2	5	5	5	21
7	Elishama (Ephraim)	1	1	1	1	2	5	5	5	21
8	Gamaliel (Manasseh)	1	1	1	1	2	5	5	5	21
9	Abidan (Benjamin)	1	1	1	1	2	5	5	5	21
10	Ahiezer (Dan)	1	1	1	1	2	5	5	5	21
11	Pagiel (Asher)	1	1	1	1	2	5	5	5	21
12	Ahira (Napthali)	1	1	1	1	2	5	5	5	21
	Totals	12	12	12	12	24	60	60	60	
	Grand total of quadrupeds offered - - - -									252

Thus the total offerings of the 12 Princes for this one ceremony was 252 animals. These included young lambs and bullocks, which had evidently grown since the Exodus. This large number evidently did not materially reduce the flocks or impoverish the Princes. Doubtless the Hebrew captains and others of still lower tribal rank had cattle, mayhap, flocks of smaller size. But the total number of animals even then must have been large. Chapter 21, Vol. 2, shews how these flocks must have grown in the later days of the Forty Years Wanderings. These facts go far to shew that the majority of the Hebrews were all along largely if not mainly shepherds: one of the healthiest of occupations, because so largely conducted in the open air, and that was the pure and balmy air of the Desert. But by side lights in the Pentateuch and the mention of Bezaleel, Aholiab, workers in cutting of precious stones, carpenters, &c., we know that many trades, perhaps all the then known ones, were followed by the Hebrews during the Wanderings, but in

smaller numbers; and not as often now, in close, ill-ventilated factories and badly-drained, smoky towns, but in the purer air of tents and the Desert. The flocks now spoken of formed their chief stock-in-trade and wealth. No inconsiderable portion of them was required for their ritual and sacrifices. A much smaller fraction for their animal food. That was mainly furnished in the shape of quails. Like other Eastern nations, the Hebrews lived largely on vegetable food. Our belief in the size of the Hebrew flocks and herds might perhaps be a little shaken if we deem the present barren condition of the Sinaitic peninsula resembles what it was in the Mosaic period. Unquestionably neither were the Deserts of Shur, Sin, Sinai, Paran, or Zin of that day, nor was Judea further north, so barren, poorly watered, uncultivated, and unproductive, as they now are; but comprised many very fertile wadys or valleys, that furnished food for their animals. Like other well-known and wide regions, formerly densely peopled and highly cultivated, for example, Babylonia and Assyria, depopulation, and above all the ban of Heaven, have done their work in making these regions desolate and barren. The Bible makes only one mention of fertility; viz., that of Elim, probably Wady (valley) Gherundel, where there were no fewer than twelve wells of water and three score and ten palm trees. The cultivation of corn and garden produce; the leeks, onions, garlick, and so forth, such as they had been accustomed to in Egypt, would also be a favourite pursuit with many for camp supply and to supplement the manna. For this they stayed sufficiently long at some places, *e.g.*, at Kadesh Barnea, at the southern end of Judea, doubtless fertile and well adapted both for pasture land and gardens. On the whole, therefore, the occupations of the Hebrews of the Wanderings were highly sanitary and contributed to, far more than detracted from their health, vigour, and longevity.

17. The environs and purlieus of a camp or other community often have a material influence for good or for evil on their sanitary condition and health. Physically, topographically, and geologically, the desert beyond each camping ground was in itself highly sanitary; as it consisted not of marshy, swampy, malarious soil, but rock and sand. Here the danger to the Hebrews lay in what they brought or did to it. The

chief sanitary factors of the outskirts of the camp that might influence the health of the camp dwellers were the following:—

a The flocks and herds. These were kept beyond, and no doubt well beyond the tribes and tents. None were permitted within its bounds to soil and render it sickly or unsightly. The camp was and each tent was supposed to be select, model, and cleanly. Nothing that could permanently render these or any part, thing or person unclean, either physically or typically, was long permitted to remain; but were for a time or permanently banished "beyond the camp." The very numerous and doubtless scattered flocks and herds of the Hebrews, no doubt formed the largest and most insanitary surrounding and appanage of the Hebrew camp. But its distance and the cleanliness that doubtless pervaded it as a reflex of that of the camp and Tabernacle, so perfectly taught by Jehovah and enforced by the legalized staff, no doubt negatived and neutralized any hygienic danger, putrefactive or malodorous, that might have accrued from the proximity of cattle. The roomy desert gave the cattle camps plenty of room in which to spread and be enlarged as the flocks increased year by year, and ultimately no doubt stretched far and wide from the central Tabernacle and leaders' tents. But the adjoining gardens and fields would necessarily benefit by proximity to a full and easy manure supply. And, clearly utilized so, the great sanitary danger of putrefying refuse would be obliterated by burial in the soil (Deut. xxiii. 13), as ordained for human refuse.

b The cultivation of fields and gardens would fitly supplement the stock raising and would be sanitary in a three-fold sense. Thus, *firstly*, it would supply the easiest, readiest, and best mode of destroying animal refuse in the most economical way; and thus prevent or get rid of an imminent sanitary danger, that of odoriferous and putrefying animal matter. While there might be a par-

tial return to the live stock for food of otherwise unused vegetable produce. *Secondly*, field and garden work would give genial, familiar, profitable, healthy, and highly sanitary open air exercise; akin to that of their stock yards. *Thirdly*, it would supply health-giving green vegetables to supplement their chief vegetable food, manna, apt to pall from continued sameness (Numb. xxi. 5). Their brief stay at most of the camp stations would clearly prevent much garden or field farming. But at Kadesh and other places where they made a longer sojourn, they would have every facility and no doubt encouragement.

c The strangers, aliens, and mixed multitude (Ex. xii. 38) which hung about the camp from its early days, and who possibly increased more rapidly than the Hebrews in the Desert; were possibly compelled to tent or remain on its outskirts: as they were not supposed to be of the same interest or value, require so special teaching, or need such care sanitary, social, moral, or spiritual; although similar law and kindness were extended to them (Ex. xii. 49). Less educated and civilized, sanitarily and otherwise, these would not add to the general sanitary safety. Though care was doubtless taken that they should not in any great measure, if at all, detract from it.

d The burial of the dead not in but beyond and possibly some distance from the camp would aid the public health by lessening the possibility of disease from contamination of air, soil, water, food, clothing, and by morbific emanations or germinations; and the chance of the spread of infectious or contagious disease.

e The complete segregation of lepers in a leper colony, located beyond the camp, well known and that all would avoid, would clearly aid to prevent the spread of that disease. There may have been a general colony or one for each tribe, possibly the former, as this disease, common perhaps at first, does not appear to have been especially frequent during the later days of the

Wanderings; having perhaps been nearly or entirely stamped out by the combined effects of inspection, isolation, cleanliness, and treatment.

f The law that compelled the avoidance of human deposits in the camp; and necessitated this well beyond it (Deut. xxiii. 13) was highly sanitary for the camp, as its putrefaction is one of the most potent of disease generators. Nothing is said on the subject, as it is of minor import. But possibly there may have been some methodical and definite arrangements and places for each tribe, or for each of the four sides of the camp. This, from several obvious points of view, would be sanitarily wise, both for the people and the camp.

g The temporary Tabernacle, or tent that did duty for this before the more elaborate structure was erected, and that Moses pitched beyond the camp after the worship of the Golden Calf at Sinai, to God's grievous displeasure and the temporary withdrawal of His favour (Ex. xxxiii. 7); was an object and an incident that does not seem to have any special bearing on the camp or Hebrew sanitation. Except perhaps that to it, out of the camp, instead of to the Tabernacle in the focus of this, lepers, real and suspected, and other infected persons, would repair for inspection, with greater safety to others, and thus still further reduce the chance of infection to a minimum.

This methodical and systematic arrangement and routine of the Hebrew camp in the Wilderness, usually looked at solely from a historical and an archæological point of view; is thus of far more importance and interest from a sanitary aspect. Regarded from this practical standpoint, how wise and well planned to meet various emergencies, every point appears. While the sacred Tabernacle or church, God's dwelling place among men, centred and dominated the entire camp for the purpose of teaching and promoting the spiritual, moral, and social hygiene of the Hebrews, in other words, the purity, health, and happiness of their higher nature; the tribes camped round it, by their physical and hygienic environment, were taught and initiated into the highest and most philosophic system of medico-physical hygiene, and helped to promote the cleanliness,

health and happiness of the body. These twin and collateral systems aimed at the freedom of the soul from sin; and the emancipation of the body from disease. The plan was a revolution in Man's history and life. Its object was the evolution of the race from sin and its dire effects on Man's double nature, soul and body.

But the Hebrew camp was not meant to be stationary. Nor did the tribes, after the complex Mosaic law code was given, and all the rules and regulations for their public and private life were made, remain at Sinai during the remaining 38 or 39 years of the Wanderings. The lengthy stay in the Desert and their circuitous detour were not intended when they left Egypt; and resulted from their own folly. A few days might have led them straight from the Red Sea across the Desert of Shur to Canaan, to be inducted into that fair "Promised Land." But Jehovah's task with the rebellious Hebrews was almost as hard as that with Pharoah. Again and again they murmured and rebelled soon after their delivery from Egypt and the Red Sea. For this they were led out of the way to receive the complex yet comprehensive Mosaic law, intended to educate them and their varied faculties in every department of human life. Having received this they marched to Kadesh Barnea, where they again rebelled, lacked faith in Him and in the report of the two faithful spies, Caleb and Joshua; for which they were kept marching and counter-marching in the Desert many years longer. This extension of their nomadic life was done for a great and special purpose. The Desert was to be their school. They were not sufficiently docile; but lacked faith and trust. Here they were to be further trained by the continued practical application of the full Sinaitic code: not only for their own benefit, but for the furtherance of their all-important mission.

This frequent migration implied and necessitated:—

1st. Breaking-up and removal of the old camp.

2nd. Reconstruction of another on the lines which Jehovah had so carefully laid down.

3rd. A definite arrangement of the tribes; and transport of the public property during the march.

These ever changing conditions necessitated new legislation. For this Moses possessed sufficient zeal, but evidently lacked the necessary knowledge. As with his former camp arrangement, any fresh effort of his might not have pleased Jehovah. Only one Being was fully equal to the occasion, to make all things "very good." This was the Supreme who knew and alone knew what He desired: and therefore attended to it personally and legislated as before with pre-eminent precision and method, system and order. By this arrangement each tribe, family and person had his allotted duty and his one place not

only in preparing for, but also on the march, and on re-settling. This conduced mainly to three prominent objects:—

1st. The safety of the Ark, Moses, the Priests and Levites, the women and children, the people, their tents and property.

2nd. The maintenance of their bodily health and vigour; and the prevention of disease by judicious public and private sanitation.

3rd. The furtherance of their spiritual, social, moral, secular and political education, in which frequent chastisement in various forms, and for many different faults, took a prominent part.

The Israelites moved onward, shifted their camp, and re-camped, not as they themselves or their earthly leader pleased, but according to Divine direction. The preparation for and initiation of the march must have been a striking scene. For convoy guidance and aid Jehovah sent His angel with them. This presence was evidenced by the Shechinal pillar of cloud by day and of fire by night; symbolic of God or the "Angel of the Lord" (Ex. xxiii. 21; Ex. xxxiii. 14); of which heavenly leader it is said my name is in Him, my attributes are His (Ex. xxiii. 27). This pillar rose when they were to go, moved before and shewed them where, and stopped when they were to re-camp. This leadership was necessary; as they might not have so implicitly obeyed Moses. For, though they were sometimes full of trust and faith, both in their unseen Divine and in their visible earthly leader, and then declared "all the words which the Lord hath said will we do" (Ex. xxiv. 3; xxiv. 7); on other occasions, as at Meribah, they would perversely defy and tempt both by saying "is the Lord among us or not" (Ex. xvii. 7). Thus, just as "at the commandment of the Lord they *rested* in their tents," that is remained stationary, so "at the commandment of the Lord they *journeyed*; they kept the charge of the Lord, at the command of the Lord, by the hand of Moses" (Numb. ix. 23). "When they moved, the Ark of the Covenant of the Lord went *before* them to search out a resting place" (Numb. x. 33). Thus also it was Jehovah and not Moses who decided when and where and how long to camp in one spot. "And when the cloud was taken up from the Tabernacle, then after that the Children of Israel journeyed; and in the place where the cloud abode there the Children of Israel pitched their tents." It was at the command, not of Moses, but of the Lord they pitched. As long as the cloud abode upon the Tabernacle they rested in their tents: and when the cloud tarried long upon the Tabernacle many days, then the Children of Israel kept the charge of the Lord and journeyed not: and so it was when the cloud was a few days

upon the Tabernacle" (Numb. ix. 15-20; Ex. xl. 36-38). Moses records all this, and thus takes no credit for any part of these new arrangements; save that of superintendent; the original position for which God had prepared him in his earlier Egyptian and Desert days.

The cloud over the Tabernacle having lifted; and Moses, Aaron, the High Priest, Priests, Levites, and the congregation having prepared, systematically, leisurely, and orderly, without confusion or excitement: the next signal for the march was, "the blast of two silver trumpets (Numb. x.). Then the march began in the order appointed by Jehovah to be presently detailed. The lifting of the cloud, seen far and wide, gave the entire camp notice. This would be followed by instant and universal activity. Every one of that well-taught and drilled multitude knew precisely what the signal meant, what to do, when to do it, and where to go to do their individual part of the work, in which every soul would have some share. Each man, woman and child, each family and tribe, had its station to keep, its duty to do. Clearly there were three chief things to transport: namely—

1st. The tents and household belongings.
2nd. The herds and flocks.
3rd. The Tabernacle and its furniture.

The transport of the former two would be effected by the people themselves. Individuals, families, and tribes would be the safest guides and caretakers of their own property, and their own women and children. The sacred and valuable property of the nation, the Tabernacle, and its belongings, were taken special care of and were taken down, carried, and again set up by the Levites, who had been specially set apart for this purpose. No one else was permitted this privilege. Nor were they to handle its different parts unnecessarily. Each of the three Levitical families had its own special and inalienable duty and part to perform. The removal of God's dwelling, the sacred and national church, was effected with regularity, system and order, and without haste or carelessness. Some were told off to take certain parts down, carry, and set them up again on re-camping. They had to protect them from theft or sacrilege; and were generally responsible for their safety from foes and damage. In order to affect this the Tabernacle and its caretakers were allotted the place of greatest safety on the march: this and all other stations being appointed, not by Moses or Aaron, but by Jehovah. Thus:—

1st. The Gershonites, who camped on the west side, that is behind the Tabernacle, had charge during the march of the drapery and lighter upholstery; the Tabernacle

coverings, tent door hangings, court, door cords, court hanging curtain (Numb. iv. 25-6).

2nd. The Kohathites, including the sons of Moses, all of whom camped on the south side of the Tabernacle, had charge of the sacred things of the sanctuary, including the ark, altar, vessels, table of shewbread and golden candlestick; to carry on the march and replace them on re-camping. It was the special privilege of the sons of Moses to carry the sacred vessels, &c. (Numb. iv. 4).

3rd. The Merarites who camped on the north of the Tabernacle, had the heaviest load on the march, and had to take down, carry, and put up again, the boards of the Tabernacle, its bars, pillars, sockets, pins, cords, and all the bulky or heavy materials which were delivered to them (Numb. iv. 31).

4th. Moses, Aaron, and his sons had special charge of these families and their work and of the sanctuary for the nation. It was their duty to see that all was done decently and in order (1 Cor. xiv. 40), as Jehovah had legislated; and also that these duties were done by no one else. The stranger that sacrilegiously dared to come nigh to do this, was put to death (Numb. iii. 38). Even the Levites and Aaron himself were debarred from certain things. The former might not enter the Holy of Holies while the cloud rested on it; nor could Aaron enter the Holy of Holies save once a year (Lev. xvi. 2).

The Levites were unarmed, non-combatants, and took no part in the protection of the camp generally, the tribes, women and children. Their sole duty was connected with the Tabernacle; to officiate ritually and protect it, especially from sacrilege (Numb. i. 50). "The Levites shall be mine, I am the Lord" (Ex. iii. 45). They were set apart to work for Him alone. Thus it was why they pitched round it: not to officiate in, but to take care of it, carry it, put it up or take it down, and permit no profanity either by Israelites or aliens. If this occurred it was duly punished "that there be no wrath upon the congregation of the Children of Israel (Numb. i. 53); the preventing of sin being in this case and clearly equivalent to the prevention of Jehovah's ire. Before the Kohathites took hold of the sacred things to carry them, they were first covered from sight by the Priests or sons of Aaron, to ensure security, respect, concealment, and reverence. Even the Kohathites could not directly touch any of the sacred things they thus carried, lest they died (Numb. i. 50). Owing to the large number of Levites at command, the Tabernacle and its furniture

could be easily taken down, put up again, and replaced in a very short time. The number of serviceable males from 30 to 50 years old (Numb. iv. 34-5) among the Levites was Kohathites 2,750, Gershonites 2,630, Merarites 3,200—a total of 8,580 serviceable Levites for rapid Tabernacle disjunction, transport, and re-erection.

All being ready, the march began; "according to the command of the Lord by the hand of Moses" (Numb. x. 13-36): that is in definite Heaven-appointed order; and not at random as each tribe or family might have desired, each anxious perhaps for precedence and to shew alacrity. During the whole of this time, and not till it came to the turn of the Kohathites to move with their sacred charge, was the voice of Moses, the earthly leader, heard. Then, however, he spake, but merely as a subordinate of the true supernal guide, whose supreme authority and sole guidance he fully recognised by the words purposely put in his mouth, as part of the Hebrew education regarding the relation that existed between them and their unseen but all potent and real guide and sustainer. The length of each impending journey, its direction, rapidity, and the place for re-camping, were all kept secret even from Moses, to shew that he was not their true leader, but Jehovah alone. Still, Moses was made a prominent factor; but not till the Ark set forward. Then Moses said, "Rise up Lord and let Thine enemies be scattered, and let them that hate thee flee before thee" (Numb. x. 35). The precision and definiteness of the Hebrew march are very marked; and more than military. At the Exodus, although the Hebrews were "thrust out of Egypt" (Ex. xii. 39), because the Egyptians were "afraid of them" (Ps. cv. 38; Ex. xii. 33), and "glad to get rid of them" (Ps. cv. 38; Ex. xii. 33); and so were "urgent" for their departure (Ex .xii. 33-4); still, marshalled by the adept ex-general Moses, they assembled and arranged their march at Rameses or Succoth, "went out with an high hand" (Ex. xiv. 8), and left "according to their armies" (Ex. vi. 27; xii. 51); that is probably by tribes; and also "harnessed" (Ex. xiii. 18), that is in an orderly manner, somewhat like an army, not as an unorganized mob. Now, however, even Moses, although aided doubtless by the Princes of the tribes (Numb. xvii. 6; Numb. xxxiv. 18; Josh. xxii. 14), and by the prospective elders of Israel (Ex. xxi. 1), acting as his subordinates; took a secondary position both in organizing and conducting the march. His evidently faulty arrangements of the Exodus had to be rectified. The being who now marshalled and led the Hebrew nation was the Lord of Hosts; whose plans both for camping, marching, and re-settling were necessarily "perfect," like all else that He arranged. The main agents in the move, the people, had to

be and no doubt soon were well drilled in the necessary signs and movements. The meaning of the lifting of the Tabernacle cloud would be patent to every soul in the camp. Another signal that would be heard all over the camp; and the meaning of which all could decipher was the "blowing" or the "alarm" of two long silver trumpets, one for each of Aaron's sons. The occasions and manner of using these were:—

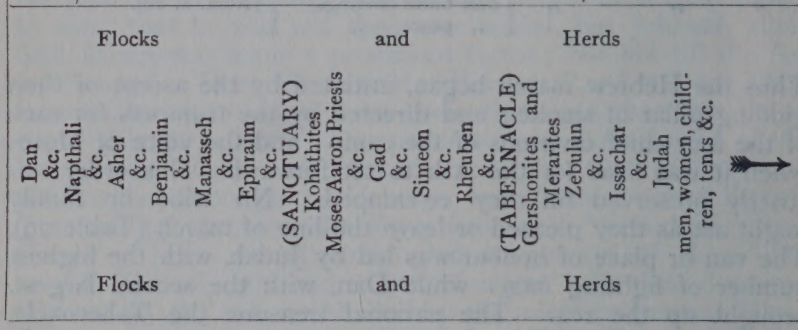
a	the blowing of	1	trumpet	called the princes of Israel together to Moses no doubt for instruction or consultation	(Num. x. 5).
b	,,	1	alarm	told the camps on the East side to go forward	(Num. x. 5).
c	,,	2	,,	South ,,	(Num. x. 6).
d	,,	3	,,	West ,,	(Num. x. 6).
e	,,	4	,,	North ,,	(Num. x. 6).
f	,,	2	trumpets without an alarm	was to gather the congregation or assembly at the door of the Tabernacle	(Num. x. 3).
g	,,	,,	with ,,	going to war against an enemy	(Num. x. 9). ,, xxxi. 6).
	,,	,,	on solemn or glad days		(Num. x. 10). (Lev. xxiii. 24 : xxix. 1).
h	,,	,,	or beginning of months / over burnt offerings / ,, peace ,,		(Num. x. 10).

Thus the Hebrew march began, initiated by the ascent of their guiding pillar of smoke; and directed by the trumpets for each of the four chief divisions of the camp; and the voice of Moses when it was time for the Ark to set forward. This order was strictly preserved till they re-camped. No tribe or family might act as they pleased or leave the line of march (Table 29). The van or place of honour was led by Judah, with the highest number of fighting men: while Dan, with the second largest, brought up the rear. The national treasure, the Tabernacle, was defended by three tribes, and a total of 186,400 men in front, and by three tribes, with 151,450 men immediately in the rear. The still more valuable sacred things of the sanctuary had six tribes, with 337,850 men to defend it in front; and other six with 265,700 men to defend it behind. Its safety, from a human standpoint, was thus assured. The care of the women and children could be left to individual tribes, who would transport and if necessary fight for their own as no one else would. Thus, this huge company, and their belongings, including their flocks and herds, doubtless on either side, and not with or between the tribes as it would have been uncleanly and insanitary for women and children to walk in the wake of herds and flocks, moved on in quiet and systematic order; until the guiding cloud resting over the Tabernacle as it was being carried by the Gershonites and Merarites, again stopped sailing

TABLE XXIX

The Hebrew Order of March

No.	Tribes	Fighting Strength	
1	Standard of the camp of Judah	74,600	
2	,, Issachar	54,400	186,400
3	,, Zebulun	57,400	
4	The Tabernacle borne by the Levites (Gershonites and Merarites)		
5	Standard of the camp of Rheuben	46,500	
6	,, Simeon	59,300	151,450
7	,, Gad	45,650	
8	The Sanctuary borne by the Levites (Kohathites)		
9	Standard of the camp of Ephraim	40,500	
10	,, Manasseh	32,200	
11	,, Benjamin	35,400	265,700
12	,, Asher	41,500	
13	,, Napthali	53,400	
14	,, Dan	62,700	



onward, to indicate the new camping ground. These two families of Levites had already re-erected the sanctuary ere the Kohathites arrived with the ark and other sacred things, which could therefore be deposited at once out of the vulgar gaze. So that the guiding cloud-pillar evidently kept station over the Tabernacle in front; and not over the sacred things. The Pentateuch makes no mention of where Moses, Aaron, the Priests and their families marched. Doubtless it was with the Kohathites and near the Ark. Thus on the march as in the fixed camp, each tribe and family had its assigned and inalienable place; and every individual of age his or her assigned duty.

The cloud, Ark, and Tabernacle having thus rested, to mark the centre of the new camp, the voice of Moses was again heard

in recognition of the Divine Captain, Leader, and Preserver of His nation in the sentence "Return O Lord unto the many thousands of Israel" (Numb. x. 36). After this the various tribes broke the ordained order of march; and separated, each to take its own appointed place in the new camp, as Jehovah had already planned; three tribes being located opposite each of the four sides of the Tabernacle; with Moses, Aaron, the Priests, Levites, and their families camped for security between it and them. Thus, as in all that Jehovah does and says; in the petty migrations of humankind, as much as in the march of the mighty star hosts of Heaven, quiet, regularity, precision, order, and the entire absence of confusion and bustle, were as much the characteristics of the Hebrew march as they were of the settled camp. And thus also it was that whether marching or camping, by the Tabernacle and its ever-present Shechinal pillar of cloud or fire, by the constant presence of the High Priest, Priests and Levites, by the trumpets and the never-absent presence and voice of the venerable Moses, the Hebrews, both as a body and individually, were kept constantly in remembrance of Him who had created, emancipated, led, protected, fed, clothed, and cared for them in every possible way; who would fain have raised them to high honour, earthly and eternal; and desired and strove to win them by unremitting kindness and forethought, to love, honour, and obey Him, and Him alone.

Guided and guarded thus, under the nominal charge of Moses, but the real leadership of Jehovah, and the agency and pilotage of the Divine pillar of cloud or fire; the Israelites spent the next 38 years of their lives, which, with one year passed at Sinai and another between that and Egypt, completed the 40 years of the Wanderings. This long sojourn in the deserts of the Sinaitic peninsula, which makes the sanitation of the Hebrew camp and the nomadic life of the Hebrews of that day so interesting, was not originally intended. Nor was its prolongation the desire of the Deity; but the sole fault of the Hebrews. Jehovah did not intend to keep them for 40 years out of the Promised Land, or to vex them by wandering, camping and re-camping all that time in the Wilderness. This was not the first nor the last or least of the punishments which the Israelites brought on themselves, and that for one of the most heinous of all the sins that human beings can commit, distrust and disbelief in God. From the Red Sea, a few days' march across the Desert of Shur would have led to the southern borders of Canaan. But God had first to disclose His laws and rules for their life conduct and education; and to effect this in the most memorable way made a detour to the solitudes of Sinai, where He established His church and ritual and revealed

the Sinaitic or Mosaic code. Having started the nation on a better educational footing than humanity could have devised; He led them northward to Kadesh Barnea (map), evidently intending to enter Canaan. This was not a long journey and might have been accomplished in a few days. Instead of this they camped 20 times; no doubt for a threefold reason, viz., 1st, to teach them obedience; 2nd, patience; and 3rd, hygiene and the art of and necessity for keeping camps healthy, by frequent change of ground and excessive cleanliness, at a period when they were still only beginning to understand sanitation and the vital importance of cleanliness to health. At Kadesh, when they had almost realized their hopes, and attained the rest, peace, and happiness for which they longed (Numb. xiv. 22); their folly compelled their Divine Teacher and Guide to alter His plans by compelling them to practically retrace their steps and wander 38 years longer in the Desert for corrective punishment: to enter Canaan by a totally different route, when more subdued, obedient, and wearied with their exile than now, and not until the rebellious generation had died out and a new one had sprung up.

It appears impossible to accurately fix all the stations at which the Hebrews camped, during the Forty Years Wanderings. They were in the open desert, where all the marks of camps are soon obliterated. Most of them were in the Deserts of Shur, Paran, and Zin, the Wady Akabah, and country to the East of Mount Seir (map). As far as can be ascertained from the narrative in the Pentateuch, especially Numb. xxi. and xxxiii., where the "journeys" or "stations" are given, the following is the list:—

TABLE XXX

List of Hebrew Camps (Stations or Journeys) during the 40 Years' Wanderings

No.	Text	Camp	Incidents
1	Num. xxxiii.	Rameses	
2	,, Ex. xiii. 20	Succoth	
3	,, ,,	Etham	
4	,, Ex. xiv. 1	Pi-hahiroth	Passage of Red Sea
5	,, ,, xv. 23	Marah	Bitter water
6	,, ,, xv. 27	Elim	Wells and palm trees
7	,,	Red Sea	
8	,, ,, xvi. 1	Wilderness of Sin	Manna and quails
9	,,	Dophkah	
10	,,	Alush	
11	,, Ex. xvii. 2	Rephidim	Water from rock (Massah and Meribah). Battle with Amalekites

TABLE XXX—Continued

No.	Text	Camp	Incidents
12	,, Ex. xix. 2	Sinai	Law deliverance 3,000 slain for golden calf, Nadab's conspiracy; stoning for blaspheming
13	,, Num. xi. 35	Kibroth Hattaavah	Rebellion; great plague from surfeit
14	,, ,,	Hazeroth	Miriam's leprosy
15	,,	Rithmah	
16	,,	Rimmon-Parez	
17	,,	Libnah	
18	,,	Rissah	
19	,,	Kehelathah	
20	,,	Mount Shapher	
21	,,	Haradah	
22	,,	Makheloth	
23	,,	Tahath	
24	,,	Tarah	
25	,,	Mithcah	
26	,,	Hashmonah	
27	,,	Moseroth	
28	,,	Bene-Jaakan	
29	,,	Hor-hagidgad	
30	,,	Jotbathah	
31	,,	Ebronah	
32	,,	Ezion-gaber	Spies conspiracy desert life prolonged
33			Korah's rebellion
	,, Num. xxi. 4	Kadesh-Barnea	Rebellion 14,700 died of plague
34			ditto for water
			Aaron died 40th year 1st day 5th month aged 123
	,, ,, xxi. 10	Mount Hor (edge of Edom)	Rebellion because discouraged
35			Plague of fiery serpents
	,,	Zalmonah	
36	,,	Punon	
37	,, ,, xxi. 11	Oboth	
38	,,	Ije-abarim (border of Moab)	
39	,, xxi. 12	Zared	
40	,,	Dibon-gad	
41	,, xxi. 12	Arnon	
42	,, xxi. 16	Beer	
43	,, xxi. 19	Almon-diblathaim	
44	,, ,,	Mattanah	
45	,, ,, 20	Nahaliel	
46	,, ,,	Bamoth	
47	,,	Mount Nebo	Moses died aged 120
48	,, ,, ,, 33	Bashan	Battles Amorites-Bashan-Midianites, 24,000 Hebrews died of plague
49	,, ,, xxv. 1	Bethesihmoth	Plains of Moab by Jericho
50	,, ,, xxv. 1	Shittim	,, 24,000 Hebrews died of plague for Idolatry &c.

(See Map)

The list of camps in Numb. xxxiii. is 42. In Numb. xxi. 12-13 several more are given, which raises the number to 50. In the same chapter several other names are given, *e.g.*, beer of the wells Mattanah, Mahaliel, Bamoth. But these are merely towns or villages between the Moabite and Amorite country where they did not settle, only passed through, before reaching, fighting, and defeating Sihon and the Amorites. These names are doubtless the *headquarters* of the camp where Moses, Aaron, Priests, Levites, and Tabernacle pitched; while the different tribes and their flocks and herds spread over the country to find pasturage. The stay at these different places varied. In the eleven encampments between Egypt and Sinai they took a year. At the foot of Mount Sinai they remained nearly a year. At Taberah and Kibroth-Hattaavah they abode for at least a month (Numb. xi. 20). In Hazeroth they tarried seven days, if not more, during the exclusion of Miriam from the camp while leprous (Numb. xi. 35; Numb. xii.). In the Wilderness of Paran a grand pause was made while the spies searched the Promised Land for 40 days (Numb. xii. 16; xiii. 3). Their refusal here to listen to God and His spies was the beginning of the penal portion of the Wanderings, comprising 38 years nearly. In spite of their sentence of prohibition the host made a wayward attempt to win their way by the pass at Normah, to the "hill" or "mountain" country of the Amalekites, Caananites, or Amorites, and were defeated, humbled and repulsed (Numb. xx. 16; Judg. i. 14). The greater part of this long exile was passed in the region (not city) of Kadesh (Deut. i. 46); in which of course the camp may have been shifted at convenience and under direction many times. As a rule one day's march would take them from camp to camp. On two occasions three days formed the period of transition between station and station of the permanent encampments, viz., from Sinai to Taberah (Numb. x. 33), and from the Red Sea to Shur (Ex. xv. 22). Between Egypt and Sinai they journeyed leisurely till settled and accustomed to camp and Wilderness life. Between Sinai and Kadesh the march was rapid and stations frequent to hurry them on to their final goal—Canaan. Their stations were few, the intervening journeys longer, and the stay more prolonged during the 38 years spent between Kadesh and crossing the Jordan; and there no doubt they spent much of their leisure in the long, wide, and well watered and fertile Wady Akabah, in developing their main wealth, their flocks and herds, and in agricultural and horticultural labours for camp supply. At Kadesh Barnea they probably remained camped for 36 years. At Mount Hor they mourned for Aaron one month and the same for Moses at Mount Nebo. They also stayed some time in the plain of Moab before crossing into Canaan.

The great end and object of the life and banishment of the Hebrews in the Wilderness was eminently educational; chiefly as to Man's highest duty—to God; next to his fellow creatures; lastly as to himself. The last included all matters that concern humanity; the development of the earthly as a preliminary to the higher or heavenly life; the hygiene of the body as well as that of the soul, morals, home, and nation. While at Sinai they had been given a general outline of the laws of health, preservation, and the prevention of disease; and indoctrinated by a broad epitome of the laws of personal sanitation, including those regarding food, drink, rest, exercise, and all the more important factors of private sanitation; as well as the laws of public hygiene, including those of camp life. Now, they were under other conditions; not in a permanent camp, but as a community of nomads, with a totally different environment, that had materially changed all the old and introduced new sanitary conditions. Our object here is to ascertain whether or not these affected health and hygiene differently; how and how much they did so; and also to point out the practical lessons in sanitary matters the Hebrews were taught, while thus alternately camping and marching in the Desert, as a sequel and supplement to the didactic lessons taught from Sinai; and the written law into which these had been embodied by Moses and frequently read to them by him or the Priests, so as to deeply inculcate them and shew their importance. To effect this purpose it will be necessary to divide the years of the Wanderings into groups or sections, according to the immediate objects of this very much prolonged and very circuitous march, and its leading incidents.

1st. The period between the Exodus and arrival at Sinai. This occupied about three months, during which they camped 12 times (map). Four of these camps were in Egypt. From Pihahiroth they crossed the Red Sea, where they were specially taught Jehovah's paternal care of them and His God-like power over their enemies and His. They had now left Egyptian soil and bondage. By God's miraculous power they were now free; a new-born nation. The Wilderness was to be their school; Jehovah their instructor. Their education soon began. They had first to be accustomed to desert life and freedom. At Marah, their first camping ground in the Arabian Deserts, they had their first lesson, one in sanitation, and their dependence on God even for the necessities of life. Water, next to air, is the most urgent necessity of life; they first felt the lack of it in the Wilderness of Shur, where they found no water (Ex. xv. 22); and to

make it palatable and healthy, it must be pure and fresh. Marah bitter water had to be purified for them (Ex. xv. 24). This lesson was corroborated when they reached Elim, a fertile wady (ghirundel) with twelve wells of water and three score and ten palm trees, the water comfort of which they no doubt enjoyed: while these alternations inured them to the Desert. Further on in the Wilderness of Sin camp they were taught a similar lesson regarding food, by the dual daily supply of manna and quails by miracle. After other campings they came to Rephidim at the back (eastern side) of Horeb, where they again murmured for water and had it supplied in its purest and unceasing form, from the rock. From thence, after having defeated Amalek, by God's help, they moved on to the other (the southern) side of Horeb. So far they shewed unparalleled discontent and ingratitude; most of all to Jehovah, who had done so much for them, and so lately.

2nd. The Sinaitic camp was probably either in the Wady-esh Shiekh or the Wady Feiran. The stay here, beneath the shadow of Horeb lasted nearly a year. Here the nation was brought for a definite purpose; and for an honour and a privilege bestowed on no other people that has yet existed: and so were taken out of their way to the Promised Land to listen to God's voice; learn His immortal and Divine laws; know how Man ought to live; be the means of teaching the world therein; and become a good example to other nations. This supernal education was not only theoretical, but practical, and comprised several different codes of the fundamental principles that ought to have guided the Hebrews as many functioned beings, in every relation of life. But while soul, heart, home, social and national morality were all taught, rules for the welfare of the body were not forgotten. Hence to the invaluable Decalogue and other law codes was superadded a sanitary system, complete though brief, giving all the essentials of personal and public hygiene. This system included rules for the sanitation of their newly instituted and God-organized church or tabernacle; and those laws for their remodelled camp that we are now considering. A code that is both curative and preventive: like all the other divisions of the multiple code of which it forms one. There, in the solitude and awe of Mount Sinai, alternated by the visible, deeply impressive manifestations

of God's presence, they were to learn the great lesson of their lives, their dependence on Jehovah and on Him alone, for time as well as for eternity. Jehovah asserted Himself there as Man's maker, preserver and guide. Hence the revelation of the Sinaitic or Mosaic law, so-called, spiritual, moral, social, civil, judicial, criminal and hygienic. Hence the rules for camp arrangement and for the march. These were all to be "perfect." Hence they were given by Jehovah; as a revelation, primarily for Hebrew and secondarily for the Earth's education. And not one alone, the corporeal, was solely sanitary. They were all hygienic, that is preventive, as well as curative, of the aberrations caused by sin, whether on the soul, heart, social life, frame, or the national existence. The preparation at Sinai for renewing the Divinely and therefore properly regulated march of the tribes, and transport of their all-important Tabernacle to the eagerly desired and not far distant Land of Promise, took some time to accomplish; as it included not only the delivery of the multiple law code, its indoctrination into the erratic people, rules for camping, marching, and perhaps the beginning of their inscription by Moses in his book (Ex. xvii. 14; Mark xii. 26). Every one of these law codes was new to them; and it was not easy to master fully some of them, far less all, in a brief space of time. Many, perhaps the majority of the congregation, were ignorant, indifferent, and unruly; caring little for curbing, tuitional or corrective, laws of any kind, sanitary or otherwise. How often even the beneficent laws of God are unwelcome; how frequently are His sanitary laws deemed unnecessary!

3rd. This part of the Wanderings, from the Wilderness of Sinai, through the Wilderness of Paran to Kadesh Barnea, in the Wilderness of Zin, is comparatively short. Leaving on the 20th day of the second month of the second year (Numb. x. 11) they arrived on the first month of the third year (Numb. xx. 1); thus making them eleven months nearly on the way; during which they camped 21 different times: so that they were on an average a fortnight at each place. The route along the eastern side of the Wilderness of Paran is always dry, dreary, and often very harassing. This may partly account for the slow march and the frequent campings. But no doubt it was also largely educational; and had several other objects in view: thus—

a This was the initiation of a new regime when "they first took their journey according to the commandment of the Lord by the hand of Moses" (Numb. x. 13). It was the first time they moved and re-camped after Jehovah had enunciated His new camp arrangements; in which of course they had to be physically instructed, to obliterate old and substitute new ideas regarding camps and camping. Frequent moving and re-settling was necessary for this during their early hygienic education; with a special view to indoctrinate systematic combination, as necessary in this as in all other work, especially that which God allots and superintends.

b By keeping the tribes healthily employed, it aided their sanitation in many different ways.

c It specially promoted and taught camp sanitation; by thus shifting the camp to fresh ground more frequently that was subsequently necessary when the Israelites were better drilled in personal, tent, and camp cleanliness and routine than now. Possibly it was this very sanitary item, the lack of perfect cleanliness that was the main factor in which the camps of Moses during the early part of their Desert life, fell short: and now both he and they were being educated out of their sanitary ignorance on this point. Moses had been accustomed to soldiers, more amenable to control than communities, consisting largely of sanitarily ignorant women and children, often too wilful to promote satisfactory cleanliness by obeying the strict rules of the Hebrew camp; and as perverse in body as in soul sanitation. The new rules aimed at teaching sanitary as well as general obedience.

d Training in the higher walks of hygiene were necessary for the Hebrews; to instil implicit trust in and unquestioning obedience to God, and the entire surrender of self-will; two lessons as hard to learn then as they are still. Many of Jehovah's wise restraints and laws, those lately enunciated at Sinai, were distasteful to the self-opinionated Hebrews,

who would fain have followed their own devices and been a law unto themselves, in matters sanitary and otherwise. This frequent orderly camping, re-camping, and marching was evidently a fresh grievance; at which they "murmured." For this many were consumed by "the fire of the Lord" (Numb. xi. 1). Training in the higher hygiene was thus clearly necessary yet, as it had been at Horeb and even before then. Yet still again they murmured at Kibroth-Hattaavah; this time for flesh food. Having obtained this by miracle in the form of quails, they surfeited themselves, which brought them another sad sanitary lesson in the shape of a "very great plague," that is some very fatal bodily disease (Num. xi. 34), which named the place "graves of lust," an obvious sanitary hint regarding every other human passion. The moral effect of this chastisement is obvious and marked; for we hear of no more murmurings during the many subsequent campings between this and Kadesh, at least on the part of the people. At Hazeroth, however, the next station, Aaron and Miriam, two leaders of high rank, who ought to have set a special example of Godliness and obedience, became so jealous of their brother Moses as to "speak against him" (Numb. xii. 1). Moral sin was punished by physical disease; as perchance it often is now. Miriam was made leprous and put out of the camp for seven days, while the march was delayed, no doubt much to the annoyance of the people, anxious to reach Canaan. Nothing of special sanitary import is recorded of other stations on to Kadesh.

4th. At Kadesh, near the southern border of the longed-for Promised Land, they halted; and contrary to expectation, but thanks to their own folly, made a much longer stay than originally contemplated. The forty years spent in the Desert by the early Hebrews were not all "wanderings"; nor were they spent solely in camping, moving, and re-camping. As yet they were only about two years from Goshen, during which they had camped 32 times. But nearly a year of this

time was spent at Sinai to receive what may be called their marching orders, namely, the multiple Sinaitic law; and to arrange their spiritual, moral, social, political, and sanitary education on Divine lines. Between Sinai and Kadesh they had been trained in systematic camping, cleanliness and obedience. From Kadesh they were meant to enter and occupy Canaan at once, by dislodging its heathen inhabitants; thus ending their wanderings and desert life. Instead of this they were punished by having to remain here for almost a lifetime. For, alas, notwithstanding all that had occurred, they still lacked faith in their Divine leader; therefore in their earthly leader and themselves. At their own request, spies were sent to report regarding Canaan and its people. These explored for forty days as far north as the latitude of Tyre. But ten reported badly; and these the faint-hearts believed in preference to truthful Caleb and Joshua. Almost the entire nation, the Levites probably excepted, mistrusted God, rebelled, mooted the choice of a new leader and return to Egypt. For this the ten false spies died of plague (Numb. xiv. 37): while the whole nation had their entry into the Promised Land postponed and their Desert-life prolonged by 37 or 38 years, during which their impious and unwise wish that they had all died in the Wilderness was to be literally fulfilled (Numb. xiv. 3), and none of the males but those under 20 were to have the honour of entering Canaan (Deut. ii. 14). Veering round, but still anxious to go forward, the Hebrews next attempted to act on their own account; unwisely essayed to enter Canaan by the "hill" country (Heb. xiv. 41). But Jehovah's decree had gone forth. This movement was unsanctioned and therefore unsupported by Him. The Amalekites and Canaanites "discomfited them even unto Hormah" (Numb. xiv. 45). After this lesson they were no doubt glad to remain unmolested at Kadesh; and here they were kept: within sight of what they so much desired. Inaction made the punishment more galling. Marching would have helped them to forget it. The Pentateuch informs us they stayed at Kadesh "many days" (Deut. i. 46). In Deut. ii. 1 Moses says "we compassed Mount Seir many days." From this some have supposed that the Hebrews spent the greater part of the Wanderings after the edict of Kadesh in this locality. But this phrase seems only to mean in this instance

that the time was long (many days till they rounded the Seir range). The lengthy stay at Kadesh, within sight of the Promised Land, would make their punishment all the greater. This evidently meant many years; and embraced the greater part of the remainder of the forty years. Probably, however, during that long stay they may have shifted ground and moved the camp somewhat for sanitary reasons and cleanliness; and perhaps also for pastoral purposes, as their flocks and herds were evidently multiplying fast, although the nation had ceased to do so, while some tribes were even decreasing; but practically this change of feeding ground was not worth record. Here, too, they would doubtless develop gardens and grow those vegetables, the leeks, onions, garlick, cucumbers, and melons, like those of Egypt, for which they had more than once murmured (Numb. xi. 5); and possibly corn. The old camp life of Sinai would be resumed; and their Tabernacle worship and sacrifices, of which the arrears during the late march would have to be made up. Here, too, Moses, Aaron, and their assistants would resume their gradual instillation and enforcement practically of the various codes of the Sinaitic or so-called "Mosaic" law, with its spiritual, moral, social, political, and sanitary sections, after the Divine model; and so very different from the laws of other cotemporaneous nations: but meant to make them so much superior to them all in every possible respect: and that would have soon and fully effected this grand and beneficent purpose, if they, the main agent in the matter, next to the Deity, had themselves acquiesced and permitted. Above all, they would endeavour most to instil that which they most lacked; that which would have formed their chief virtue and praise, perfect faith and trust in their Divine leader, Jehovah. Successful instruction ought to have been favoured by the softened, chastened hearts produced by the punishments of the earlier days of Kadesh. But alas for human perversity and depravity. The educational record was again marred by the audacious rebellion of Korah, Dathan, and Abiram, for which they, their wives, children, houses and goods were publicly entombed by an earthquake; while fire from the Lord consumed the 250 men that had offered incense (Numb. xvi. 35). Still rebellious, the people next morning chode Moses and Aaron for destroying Korah and the conspirators (Numb. xvi. 46). To

punish this, and prevent its repetition, Jehovah sent a plague which slew 14,700 murmurers. And, in order to endorse the office of Aaron, performed the miracle of making Aaron's rod bud, blossom, and bear almonds, while those of the 12 tribal princes remained dead. Once again the people murmured at Kadesh, this time for water. This Jehovah supplied from the rock, struck by Moses (Numb. xx. 11); who was himself punished for petulance, by being debarred from entering Canaan. Another notable event ere they left Kadesh, was the death of Miriam (Numb. xx. 1).

Moses, the student and philosopher, had learnt more than anyone else from the revelations of Sinai. It is "learned" men who best know their own comparative ignorance and most eagerly receive and appreciate fresh knowledge. He had learnt that the complex law code enunciated at Horeb had been bequeathed to the Hebrews not only to be known but to be obeyed; and that disregard was punitive. He knew that all knowledge is meant for the multitude, especially its practical outcomes; and therefore should not be hoarded in the Ark, but popularized and spread. This servant of God had learnt, among other things, that all the sciences and philosophies centre in their sole author, God; and consist merely in a knowledge of God, His attributes, aims and works: that genius and talent are only the Heaven-devised means that enable mankind to master these in a manner and so far as the Deity permits. He saw that every one of the Sinaitic codes were vitally important: his medically educated mind enabled him to see that the sanitary code was not the least important; that camp sanitation was an integral part of this, as materially involving the health, happiness and welfare of large bodies like that over which he presided under God. The health laws bequeathed at Horeb were meant not only to be known and learnt but to be obeyed; while he was the responsible teacher. He therefore would gladly seize this opportunity of quiet camp life, when the Hebrews were chastened by affliction and presumably amenable to judicious control and wise teaching, to instruct them and make them obey the laws of sanitation that Jehovah had so beneficently enlightened them in and not left them to find out.

The Pentateuch records how hard was the task and how frequent the failures to instil, enforce, and enlighten the Hebrew multitude as to the far-reaching benefits of the higher hygienic codes, the spiritual, moral, social, and other laws of Sinai; and the necessity for self-exertion and help in effecting them. It was then very much as it is now. The difficulty lies not with the giver of health laws; but solely with their ignorant and wilful receivers. The mass dislike exertion, even to bene-

fit themselves; and hate instruction (Prov. xv. 33). Moses no doubt indoctrinated them also in public and private sanitation. How well was he fitted to do this. But can there be a doubt that they were individually and collectively as negligent and as disobedient in medical as in all other sanitary subjects; and as often forgetful of the health as of all other codes. Except perhaps when punishment for open and gross neglect followed; and made them, at least for a time, obey better till fresh temptation or opportunity offered. During the long sojourn at Kadesh Barnea the number of individual murmurings and rebellions against sanitary laws and restrictions which gave work or took them out of their usual routine life, were no doubt sufficiently frequent, although unrecorded. And can we doubt that even some of the leaders of the people, supposed to train them, became equally negligent. Even they joined the multitude regarding the spies at Kadesh. How few of the entire Hebrew nation were not stiff necked and rebellious! Were they more amenable in sanitary than in other matters? Moses, however, would do his best to promote health among the people, as he knew its value. No doubt the sanitation of the Hebrew camp, though often hard to effect, was good. Cleanliness, the most important item, was well preserved and followed. True, the mortality among some of the tribes was rapidly increasing; not so fast among others; although amongst all of them the former rapid increase of Goshen had stayed. But this was only in terms of Jehovah's punitive fiat that all over 20 of that generation should die in the Wilderness; and could not be ascribed to defective camp sanitation. It was purely corrective, like the plague (Ex. xxxii.; Numb. xi. 4); or earthquake (Numb. xvi.). Except these rebels, the rest of the nation no doubt again increased rapidly as before, especially after crossing the Jordan.

5th. This, the final part of the Desert life of the Hebrews, is comparatively short, and must have occupied about a year. Jehovah's command after punishing the false spies at Kadesh was "to-morrow turn you and get you into the Wilderness by the way of the Red Sea" (Numb. xiv. 25). This was evidently not meant to be immediately obeyed, but was merely prospective and intended to shew that Jehovah had altered His plans and their route. But at length the time came, the cloud over the Tabernacle lifted, and they began their southward march, practically retracing their steps in order to enter Canaan from the east instead of the south side, and by another route, by "compassing" Mount Seir, and rounding the southern end of that range. The distance they had to travel (map) was about as long as the entire route they had already

come from Egypt; and included at least 17 camps (see list). But the exact number of these is uncertain. Moses gives a list in Numb. xxxiii. But in this several have been omitted, for example Shittim (Josh. iii. 1). They had again given up the settled life evidently enjoyed at Kadesh, to which they had become accustomed and probably were at last disinclined to leave. They were again doomed to move from camp to camp, with their now numerous flocks and herds, a harder task than when they left Egypt, as the cavalcade must have been much larger. With Divine foresight their march was along the wide and fertile Wadyel Arabah, which gave them pasture. Their first camp was by Mount Hor, to the south-east of Kadesh. Here Aaron died, and there they mourned him a month (Numb. xx. 29). Here, too, the Canaanite King of Arad beyond Kadesh, without provocation or warning, followed the Hebrews and took some prisoners. The Israelites retaliated and utterly destroyed them and their cities (Numb. xxi. 3). Leaving Hor by way of the Red Sea and Ezion Geber "the soul of the people was much discouraged (grieved) because of the way" (Numb. xxi. 4). No doubt after the long settlement at Kadesh they disliked the more troublesome nomadic life and camp moving. They had left their garden produce, like that of Egypt, for which they so longed, behind (Numb. xi. 5). They were harassed by hostile neighbours. And possibly the knowledge that this lengthy route was the result of their own folly, may have been the most galling thought of all. They desired now more than ever to be settled in Canaan, to wander and fight no more, but tend their cattle and cultivate their fields and gardens in peace. It would have been well had this been an evidence of soul chastening and crushed self-will. But, alas, it made them quarrelsome, and though they had no excuse, they made one and "spake against God and Moses" (Numb. xxi. 5), saying they loathed manna and lacked water. For this a plague of "fiery" (inflammation causing?) serpents poisoned and slew "much people" (Numb. xxi. 7). This part of the country abounds with venemous serpents and scorpions, which however had not seriously molested them until they murmured. Once again they had a momentous lesson in their individual cure by looking at a typical brazen serpent made by Moses (Numb. xxi. 8). Their next camp at Beer,

with its "well" (Numb. xxi. 16) would be a welcome change. Later on and further north, having rounded Mount Seir, a friendly but refused request to be permitted to pass through the land of the Amorites, led to a battle at Jahaz and the defeat of Sihon, whose cities the Hebrews took and occupied (Numb. xxi. 25). This was followed still further north by a successful battle at Edrei, with Bashan King of Og, none of whose followers were left alive (Numb. xxi. 35); and they possessed his land. Then, the way being thus cleared, the Hebrews pitched in the plains of Moab, on this (east) side of Jordan, by Jericho (Numb. xxii. 1). Here Balak, King of Moab, would have fought Israel. But the well-known incident of Baalam fettered him, "and he went his way" (Numb. xxiv. 25). Here also the Israelites (at Shittim), not so forgetful that Jehovah desired them to keep apart from other nations, as enticed, mixed with the Moabites and sinned grievously by lust, thereby undergoing spiritual, moral, social, and medical contamination; for which 24,000 died of plague (Numb. xxv. 9). Probably this swept away the last remains of the perverse generation who murmured at Kadesh, thus leaving the new generation alone to occupy Canaan. Then followed the second numbering of the Israelites, preparatory to crossing the Jordan (Numb. xxvi.): the tuitionary rehearsal of the law and history of the Wanderings to the new generation (Deut. i.); the conquest of Midian, by God's direction (Numb. xxxi. 1); its bestowal on the tribes of Rheuben, Gad, and Manasseh, who had "a very great multitude of cattle" (Numb. xxxii. 1) and saw that this "was a place for cattle" (Numb. xxxii. 2). After this, Moses having "set his house in order," died on Mount Nebo (Deut. xxxiv.), and was succeeded by Joshua. The Hebrews wept for Moses thirty days (Deut. xxxiv. 8).

The sanitation of the Hebrew camp during this, the fifth, and final part of the Wanderings; both that which is personal and that which is public; was no doubt fast becoming more developed and perfect; partly from strict enforcement and partly from increased popular knowledge of their efficacy, as the education of the lately enslaved Hebrews became increased by Divine and Mosaic teaching. Between Egypt and Sinai Moses, once a leader of trained armies, had been made to feel his incompetency to cope with the camp sanitation for a hygienically undisciplined multitude of women, children, and

unruly men, fond of doing and thinking as they pleased, and ignorant of the necessity for cleanliness and other main factors of general sanitation. Again, at Sinai, the Hebrews, and even the medically enlightened Moses, were instructed by Heaven in the fundamental facts of sanitation, in all its chief branches; especially in the most important of all its factors, cleanliness, not in one but in all things, in person as well as in camp; and in the necessity for implicit obedience to these Divine laws, however frequently applied, apparently unnecessary, or personally vexatious. And this instruction was given in laws that were carefully codified and curt, yet ample and plain, that constitute one of the most beneficent legacies the human race had yet received. Further on, during the march from Sinai to Kadesh, these laws had been practically taught and enforced; not only the personal or private, but also the camp or national sanitary rules for communities, both when stationary and on the march. Again, during the long stay of 36 years, at Kadesh, the medical hygiene of the camp and people were being slowly but effectively ingrained in the daily life and habits of the people; not only *per se*, but as an integral part of the higher nature which Jehovah principally aimed at evoking and developing, the psychical being the real basis and mainspring of the hygiene which is physical. That the task was a hard one, was evidenced by the frequent and unnecessary murmurings, discontent, and rebellions of the multitude, facts that one and all shewed how necessary it was to oppose and crush their obstinate conceit and self-will, and to instil the beauties and the benefits that accrue from trust in and obedience to the Divinity in all things: and not only in the health hygiene and prosperity of the body, but also in that of the soul, the moral, and the social life. Cleanliness, for example, is not only next to Godliness, but is a part of it, because it is its unfailing outcome and result. After so many years of practical and didactic sanitary instruction, the Hebrews, both individually and collectively no doubt became adepts at sanitation, because they were compelled to listen to the reading of the law; and from constant and thorough drilling by their accomplished teacher and sanitarian, Moses; and his aids in every camp and tent. The practical outcome and result of this was that they were never afflicted with any one of those terrible ailments that so often afflicted and decimated camps, and hence were known as camp diseases, *e.g.*, dysentery, scorbutus, typhus, typhoid, relapsing fever, &c. Unfortunately, by rebellion at Kadesh, the Hebrews as a body had incurred Jehovah's anger and punishment, by which all the males over 20 years of age had practically forfeited their lives and were already falling by a comparatively early death; a calamity which the most perfect sanitation could

not have prevented; and that to teach this world-wide and time-lasting lesson for every human soul of perfect submission to God's will and ways, implicit trust in Him and in all that He does and says. During the two years that elapsed after leaving Kadesh, with its frequent changes of camp, its periods of pleasant anticipation of Canaan, alternated with fierce opposition from the heathen nations whose lives and land they had come to take; the ritual and sacrifices of the Tabernacle and also its sanitation (Chap. xix., Vol. 2) would again be much in abeyance. The lessons of the law from Moses and the Priests would once more become less frequent; as would also those on camp and personal sanitation. Although, as far as was practicable, in a frequently moved community and amongst an unsettled people, Moses would rigidly enforce the laws of health as laid down at Sinai, so very advanced and superior to those he had previously learnt at Heliopolis. But it may be asked, would not the diminution in the strict daily religious ritual lead in some and perhaps in considerable measure to those rebellions and murmurings that so frequently occurred during the Wanderings? Human beings cannot long intermit their religious duties without detriment both to soul and body. Would not these untoward incidents and the resulting punishments also have a secondary result, that of inducing forgetfulness of and indifference regarding their sanitary duties? Soul and body hygiene would then be alike neglected. The wars with Midian during the latter part of the Wanderings would likewise tend to cause neglect of hygienic matters as well as religious duties among the Hebrews; of which their sins at Shittim (Numb. xxv.) was a notable instance. The soul yields to temptation and the body to disease in very similar circumstances, namely, when they *weakened* by neglect of God-ordained duties.

At Sinai a census of the tribes was taken by God's command; and another towards the end of the Wanderings. The following table (31) shews that during these 38 eventful years in the Desert the twelve tribes had diminished to the extent

TABLE XXXI

Census of the Hebrews (Males over 20 years of age)

Tribes.		1st. Census at Sinai. (Numb i). 1st day 2nd month 2nd year.	2nd Census Plains of Moab. (Numb xxvi).	Increase.	Decrease.
Camp of Reuben.	Reuben	46,500	43,730		2,770
	Simeon	59,300	22,200		37,100
	Gad	45,650	40,500		5,150
Camp of Issachar.	Judah	74,600	76,500	1.900	
	Issachar	54,400	64,300	9,900	
	Zebulun	57,400	60,500	3,100	
Camp of Ephraim.	Ephraim	40,500	32,500		8,000
	Manasseh	32,200	52,700	20,500	
	Benjamin	35,400	45,600	10,200	
Camp of Dan.	Dan	62,700	64,400	1,700	
	Asher	41,500	53,400	11,900	
	Napthali	53,400	45,400		8,000
		603,550	601,730	59,200	61,020
				Total decrease	1,820
Levites (from 1 month old).		22,273	23,000	727	

of 1,820 fighting men over 20 years of age. In Egypt, by Divine blessing, they had increased rapidly, from 70 to over two millions of souls in 230 years. Whereas during these 40 years of Desert life, and especially since their arrival at Kadesh, this phenomenal increase had stopped, and there were now more deaths than births. The Pentateuch fully explains this. It was punitive and the result of rebellion against Jehovah for refusal to enter Egypt under His special guidance (Numb. xiv.). But for the earnest supplication of Moses, Jehovah would have swept the Hebrews entirely away and raised a new race for Moses (Deut. ix. 14). The whole of these rebels therefore died in various ways during the remaining 38 years of the Wanderings, and never entered that Canaan for which they had so much longed. They had impiously and imprudently said "would to God we had died in the Wilderness"; and God gave them their wish. It will be noticed from the table that seven tribes had increased and five decreased. Also that some tribes had increased remarkably, as of yore, notably Manasseh,

Benjamin, and Asher: while three of the five that had decreased, namely Ephraim, Napthali, and notably Simeon, had diminished greatly. The diminuents were no doubt specially under the Divine ban. Simeon was the most deeply punished, doubtless because the greatest sinners and pre-eminent in the last outbreak of crime. It was their prince, Zimri, who set the worst example, with Cozbi, the daughter of the Midianitish chief Zur (Numb. xxv. 14). Probably the whole tribe were more or less implicated, actively or passively. More than one-half of them who died were not replaced by births. The tribe is omitted from Moses' last blessing (Deut. xxxiii.) probably on account of this crime. The tribe is said never to have recovered from this, but subsequently became almost merged with the tribe of Judah. Its numbers were so reduced that it received at the division of the land only some cities out of the portion of Judah. It is worthy of notice that Jacob's dying remarks includes this regarding Simeon; "I will divide them in Jacob; I will scatter them in Israel" (Gen. xix. 7). Gad and Reuben also suffered severely in the same way; more died than were replaced. No doubt because they belonged to the same divisional camp and fell under the same enticement. Moreover, it was in the camp of Reuben that Dathan and Abiram's conspiracy had been formed. Jacob's prediction of Reuben is noteworthy; "unstable as water thou shalt not excel" (Gen. xlix. 4). Well might Moses' blessing be a request, "let Reuben live and not die" (Deut. xxxiii. 6). Ephraim diminished by 8,000; doubtless for some reason connected with the tribal history. Napthali also diminished by 8,000; probably for the same reason.

The Levites increased by 727 men. For though every one of the Hebrews, including the Levites and even their leaders, Moses, Aaron, and Miriam sinned more or less during the Wanderings, this tribe shewed itself more especially true, just, and zealous for God, without respect of persons, on several marked occasions, even though the guilty ones were their nearest kinsmen, and were correspondingly blessed. Thus when Phineas, Aaron's grandson, slew Zimri and Cozbi (Numb. xxv. 7-8), and thereby stayed a punitive plague that had already killed 24,000 who had been guilty of licentious conduct with the Midianites. And previously after the incident of the golden calf, when all the sons of Levi gathered with Moses on the Lord's side (Ex. xxxii. 27) and slew 3,000 of the idolators. These were positive proofs of Levitical fealty. Moreover, some suppose that the tribe of Levi were not among those debarred from entering Canaan by unfaithfulness like that of the adult Hebrews. Thus Eleazer, the High Priest who succeeded his father Aaron, and Ithamar, who succeeded his brother

Eleazer in the priestly office, and perhaps some others of that generations did enter Canaan (Josh. xvii. 4; xxiv. 33).

It is interesting to enquire how this large body of men, numbering 603,550 of the first numbering, were punitively disposed of during these 38 years; and whether their death and abbreviated careers had anything to do with health matters and sanitation, or resulted from other causes, wholly or partly. Some were no doubt slain in battle. The following is a table shewing their chief battles with various heathen tribes while in the Wilderness, that is before they crossed the Jordan and entered Canaan proper. A few smaller episodes of the children of Manasseh are not included, but they tell the same story (Numb. xxxii. 39).

TABLE XXXII

Hebrew Battles in the Wilderness

No.	Texts	Foe	Place	Victor	Number of Hebrews Slain	Under Leader Moses	Remarks
1	Ex. xvii. 8	Amalekites	Rephidim	Israelites	?	Moses	
2	Num. xiv. 45	do. and Canaanites	Kadesh	Amalekites	?	do.	fought against God's wish
3	,, xxi.	King of Arad (and Canaanites)	do. (Hormah)	Israelites	?	do.	
4	,, ,,	King Sihon (Amorites)	Jahaz	do.	?	do.	
5	,, xxii.	King Og (Bashanites)	Edrei	do.	?	do.	
6	,, xxxi.	Midianites	Plains of Moab	do,	?	do.	

The text does not give the exact number slain on either side in these six conflicts. In these six occasions the slaughter among the foes of Israel must have been great, and in some cases exterminative. Thus in No. 1 Amalek was discomfited with the edge of the sword (Ex. xvii. 13). This clearly involves the slaughter of many Amalekites. Although in No. 2 the Hebrews were discomfited and pursued even unto Hormah (Numb. xiv. 45) there were no doubt many Amalekites and Canaanites slain. In No. 3 King Arad, his host, and cities were "utterly destroyed" (Numb. xxi. 3). This implies great slaughter of Canaanites. The name Hormah means "utter destruction." In No. 4 the Hebrews smote Sihon at Jahaz and his force with the edge of the sword, and possessed his lands (Numb. xxi. 24). This implies a great slaughter of Amorites. In No. 5 they smote Og, his sons, and all his people until there was none left him alive (Numb. xxi. 35), and possessed his land. This implies great slaughter of Bashanites. In No. 6 the Hebrews slew all the males and five Kings of Midian (Numb. xxxi. 7-11). In the fierce hand-to-hand sword combats of those days we cannot suppose that there were no Hebrews slain in those battles. The Hebrew was a specially protected nation, especially the well-behaved and God-fearing individuals and tribes (Table 31). And in certain circumstances calling for special protection none may have been killed outright, even though some, perhaps many, were wounded. But it must be remembered that though these battles were punitive against these heathen inhabitants of the Desert; it was also a punitive period during the last five battles for the Hebrews; for they occurred during and after the rebellion of Kadesh, which was to lead to the extermination of all the Hebrew males of that generation over 20 years of age. And though the Pentateuch does not record how many were slain, no doubt to shorten the text, Jehovah probably took this mode of getting rid of the worst of the rebels, especially in the tribes which sinned most (Table 31): and many Hebrew carcases were no doubt thus left in the Wilderness as they had impiously wished (Numb. xiv. 2). Thus, if we take these battles in succession, in No. 1 the Hebrews prevailed when Moses held his arms up, and when these were down the Amalekites discomfited the Hebrews. And though in the end the latter prevailed, can we believe that Amalekites alone were slain and no Hebrews. This applies still more forcibly to the last five battles. In four we know not how many fought or were killed on either side. In No. 6, however, it is stated that the Hebrews sent 1,000 picked men from each tribe, 12,000 in all, to fight the Midianites. These five battles occurred in the punitive last 38 years of the Wanderings. No. 2 was doubly punitive, for not only had the Israelites re-

belled in the matter of the spies, but they had entered on this special conflict without consulting Jehovah and against the express advice of Moses. Can we wonder at their being discomfited by the Amalekites even unto Hormah (Numb. xiv. 45)? Or can we imagine that this discomfiture consisted merely in flight from fear, and faint-heartedness, partly of heavenly infliction? Or can we fairly conclude that none but Amalekites and Canaanites on the successful side were slain? Common sense says that many Hebrews were also killed. And can we doubt also that this result was distinctly and intentionally punitive, and that this fate of some of these Hebrews who fell in battle was heaven-sent for participation in one or perhaps in both of these sins of self-will against Jehovah. Many Hebrews doubtless fell in the subsequent battles against Arad, Sihon, Og, and the Midianites, even although the Hebrews were victorious in all. Thus while Jehovah employed the Hebrews to punish these heathen nations by dispossessing them of their land, for their idolatry and disaffection to Him, He punished the Hebrews by them in turn for their temporary rebellion against Him at Kadesh; and many fell by the sword, of the 603,550 who were not to be permitted to enter Canaan; and who, but for the intercession of Moses would have been at once swept out of existence (Numb. xiv. 12). From a purely secular point of view; one however which is much accentuated by Divine teaching; war seriously affects health, sanitation, and both individual and national welfare in many ways: thus—

1st. It sweeps away the adult males, the soldier makers, mainstay and backbone of a nation; which is thus directly and indirectly deprived of its most valuable citizens.

2nd. It leaves helpless women and children unprovided for, a tax on others or on the State, *i.e.*, the public.

3rd. It reduces farming, manufactures, commerce, and bread-winning to a minimum; and makes food scanty and dear.

4th. It reduces money in currency.

5th. Money is wasted in smoke, instead of feeding the hungry.

6th. Time, more precious than gold, is wasted in a vain search for glory.

Another mode by which Jehovah would permit or cause many of the spy-rebellious Hebrews of Kadesh to perish was doubtless by the various Heaven-sent punishments for other rebellions and murmurings. The following table (33) shews these different individual or communal sins seriatim, during the Forty Years Wanderings.

TABLE XXXIII

Murmurings and Rebellions of the Hebrews during the Wanderings

No.	Text	Place	occasion	Result	Offenders	Remarks
1	Ex. xiv. 10	Pi-Hahiroth	Fear of Egyptians	Crossed Red Sea dry shod	All the people	To shew Jehovah's care and power
2	,, xv. 24	Marah	Bitter Water	Water sweetened	do.	do.
3	,, xvi. 2	Wilderness of sin	Hunger	Manna supplied morning Quails ,, evening	do.	do.
4	,, xvii. 3	Rephidim	Thirst	Water from rock	do.	do.
5	,, xxxii.	Sinai	Idolatry	3,000 men slain by Levites. The people plagued	do. And Aaron	punishment
6	Lev. x. 1	do.	Offering strange fire	Slain by fire from Lord	Nadab and Abihu	do.
7	,, xxiv. 10	do.	Blasphemy	Stoned to death	Son of Israelitish woman & Egyptman	do.
8	Num. xi. 1	Kibroth	Fatigues and trials of the March	Many consumed by fire from Lord	All the people	do.
9	,, xi. 4	do.	Lusting for flesh, fish and vegetables	Manna and Quails given. Very great and deadly plague from surfeit	People and mixed multitude	do. 70 elders selected (Num. xi. 16)
10	,, xii. 1	Hazeroth	Jealousy and speaking against Moses	Miriam 7 days leprous. Aaron rebuked	Aaron & Miriam	punishment
11	,, xiv.	Kadesh-Barnea	Unbelief in the two true spies	Desert life prolonged, 38 years and all males over 20 to die. Ten spies died of plague	All the people	do.
12	,, xvi.	do.	Rebellion of Korah	Swallowed up by earthquake. 250 princes consumed by fire from the Lord	Korah Dathan Abiram On and 250 princes	do.
13	,, xvi.	do.	Blaming Moses for death of Korah &c.	14,700 died of plague	All the people	do.
14	,, xx.	do.	Lack of water	Water from rock	do.	to show Jehovah's care and power
15	,, xxi.	Mount Hor	Discouraged because of the way	Plague of fiery serpents. Much people died	do.	punishment
16	,, xxv.	Shittim	Idolatry and licentiousness	24,000 died of plague	do.	do.

These 16 sins of different kinds and degrees of atrocity, but all so serious and important as to require special record for the instruction and warning of future generations; included those of individuals (Nos. 6, 7, and 10); those of a considerable number of persons (No. 12); and those where many or almost the entire congregation took part (as in 1, 2, 3, 4, 5, 8, 9, 10, 14, 15, and 16). The punishments are mostly awarded to the males. Only once is the punishment of women and children mentioned, *e.g.*, in Korah's rebellion, where the wives, children, goods, and houses of the principals were also swallowed up by the earthquake. Probably the Hebrew women had no say in public matters or are purposely put in the background as irresponsible; except where specially rebellious, as perhaps in this instance. Different outcomes and punishments are mentioned as the result of these incidents. Where the discontent arose from physiological cravings difficult to restrain, *e.g.*, hunger and thirst, Jehovah granted their request and embraced, as He perhaps made, the opportunity in so doing to prove His Divine power and care of them (No. 2, 3, 4, 14). So also in No. 1 where fear moved them. In a later case (9) where they discontentedly "lusted" for flesh, fish, and vegetables, He partly granted the request by giving them manna and quails, as before; but soon after punished them by a very great and deadly plague from unseemly surfeit, of which many died. Unseemly aberrations of their higher nature towards one another (10) He punished by disease. Where their sin was of the worst kind; that against Himself, directly or indirectly; the punishment was serious, and of different kinds and intensities; thus, in No. 7 Jehovah punished an individual Sabbath-breaker and blasphemer with death by stoning. In No. 8, for discontent on the part of all the people, many were consumed by fire from the Lord: so also in No. 15, for discontent, many died from the bite of fiery serpents. Again, No. 6 for sacrilege, Nadab and Abihu were slain by fire from Heaven; in No. 12 for sacrilege and rebellion, Korah, &c., were swallowed up by an earthquake, and a clique of 250 princes slain by fire from the Lord. In No. 11, for unbelief and rebellion, the 10 false spies died by fire from the Lord, while all the males over 20 were fated never to enter Canaan. In No. 13, for rebellion of the people against the authority of Jehovah and Moses 14,700 were doomed to die of a plague. For idolatry (No. 5) in the matter of the Golden Calf 3,000 men were slain by the Levites. While in No. 16 for idolatry and licentiousness with the Midianites, 24,000 died of plague. Thus the text only occasionally gives the numbers who died thus or the sex. Hence it is impossible, as with the warfare in Table 34, to say how many of the 603,550 men over 20 who perished thus. But if we sum these numbers up and consider they were all males we have:—

TABLE XXXIV

Death Casualties among the Hebrews of the Wanderings

Events.			Numbers.
Slain	in battle	With Amalekites at Rephidim (Ex. xvii. 8)	?
		,, ,, and Canaanites at Hormah (Numb. xiv. 45)	?
		,, Sihon and Amorites (Numb. xxi. 24)	?
		,, Og, King of Bashan (Numb. xxi. 24)	?
		,, Midianites (Numb. iii.), in which 12,000 Hebrews fought	?
	in other ways	By sword for idolatry at Sinai (Ex. xxxii. 29)	3,000
		,, plague at Kibroth (Numb. xi. 34)	?
		,, earthquake and fire from the Lord	250
		,, fiery serpents (much people) (Numb. xxi. 6)	
		,, plague for idolatry and whoredom (Numb. 25)	24,000
Wanderings—Total number of recorded deaths			27,250
Male adults over 20 of first census			603,550
Total deaths unaccounted for in the Pentateuch			576,300

This calculation, the nearest approximation that can be made, leaves the deaths of no fewer than 576,300 fighting men over 20 years of age still unaccounted for. Many of these no doubt died in these battles. Many more of plague at Kibroth and of fiery serpents. These three forms of casualty, battle, plague, and blood-poisoning would necessarily make the mortality not equable but spasmodic. Thus, for example, the 24,000 who died of plague in Shittim (Numb. xxv.) would probably all succumb in a few days or at most a week or ten days. Eight days would give 3,000 deaths per day. But as we cannot prove this, we are in a sense forced to conclude that the remaining 576,300 men all may have died of disease; at any rate the majority of these did actually die of disease during the period in question. This would give—

Died in 38 years	576,300 men over 20 years of age.
This is at the rate of	15,166 per year.
Do.	291 ,, week.
Do.	41·6 ,, day.

Thus if the whole number died of ordinary disease and not from casualties, and died at a steady figure, this would have made over 41 male adult deaths per day, in addition to the deaths from women and children. These apparently were not similarly punished; though possibly many women rebelled likewise at Kadesh and elsewhere; even as Miriam against Moses.

Very often the Hebrew murmurings are reported by Moses as including the "people" and the "whole congregation," which of course included the women. Not held as individually and legally responsible, would not the punishment of losing sons and husbands and fathers and brothers be sufficiently acute? How often multitudes of human beings suffer and have suffered of old, from the faults of others, even their best loved and their kin? Forty male and possibly an equal number of female deaths per day; while deaths of children would probably, at a low estimate, raise the mortality of the Hebrew camp to 100 per day on an average. This was considerable in a camp of over two millions of souls: at least for a nation whose increase was so rapid, whose mortality and sickness in Egypt was so small: and among whom old age was the rule.

From what causes or what diseases did these Hebrews of the Wanderings ultimately and so prematurely succumb? Clearly, these deaths could not be justly ascribed to insanitary conditions of the camp, *i.e.*, public sanitation. Nevertheless sanitation is Jehovah's mode and law, and it is imperative and punitive for maintaining health. So also death and disease, induced by neglect of His sanitary laws, are among His modes of punishing mankind, not only for general sin, but especially for sanitary turpitude and negligence. And although we cannot doubt that Moses, with the aid of the 70 elders, the High Priest, Priests, Levites, Princes, and captains of the tribes, and all in authority, kept the sanitation of the camp at a high standard: still this and these could not prevent frequent and serious infraction of the private health code of the different members of that vast and oft unruly congregation. How easily might they evade the private health code and commit many and serious and oft repeated faults and sins of dieting, such as that at Kibroth (Numb. xi. 4); or of lust like that at Shittim (Numb. xxv.). These are merely given as recorded examples on a large scale. The multitudinous minor ones could not be chronicled. Very probably of the 576,300 who would have died of pure disease, had there been no battles to carry some of them off faster, succumbed to ailments not of a functional nature, but to those in which the aberration arises in the mechanism, structure, or the nutrition of the different great and important organs of the human body. These are common in God-inflicted occurrences. Previous to Kadesh the Hebrews were multiplying rapidly, as they were in Goshen, and that by the Divine blessing. This numerical increase was the combined result of:—

1. The comparatively long life of the adults.
2. The comparatively small mortality among adults.
3. Ditto children.

4. The unusual and God-ordained fertility of the nation. After Jehovah's punitive decree against the rebels at Kadesh, every one of these conditions were modified for a time, until the tribes crossed the Jordan and entered Canaan. Thus also would the decrease of the male adults over 20 be partly brought about: and this also would contribute that:—

1st. The whole of the 601,730 adult males over 20, who originally left Egypt, had died out ere the 40 years Wanderings had expired.

2nd. It follows that, as many of these 601,730 men were just over 20, those could not be deemed old for Hebrews at 60 or even 70.

3rd. These adults who died prematurely in the Wilderness of disease did not attain the usual patriarchal age of the Hebrews.

4th. The mortality among the Hebrew adults over 20 was larger than usual.

5th. The mortality among infants and children was also larger than usual, as in Goshen.

6th. Probably the fertility of the Hebrew men and women was diminished for a time.

7th. All of these points were more prominent in some tribes than in others, especially in the five tribes who bore the brunt of this decrease in numbers, *e.g.*, Reuben, Simeon, Gad, Ephraim, and Napthali; while in others, and notably in Judah, the increase in numbers seemed to have gone on much as before.

How terribly real was the Hebrew punishment for the rebellion of Kadesh; a lost earthly paradise and a premature death! Assuredly the impious scoffers did die in the Wilderness (Numb. xxxii. 13). And the route from Kadesh onwards was a veritable Hebrew graveyard, where at least 600,000 adult males left their bones as a warning for humanity not to rebel against Heaven's decrees.

This mortality among the Hebrew adult males during the last 38 years of the Wanderings throws an interesting sidelight on another part of their social and sanitary history during that eventful period. In punishment for rebellion at Kadesh and refusal to enter and occupy Canaan then, Jehovah decreed that every one of the 603,550 males over 20 years of age were to die in the Desert and never enter Canaan; with a few exceptions. At the second numbering the males over 20 amounted to 601,730; the first number being thus diminished by 1,820. These 601,730 must have been born in the Desert during the 38 years' punitive Wanderings. That is at the male birth-rate of 15,835 per year or 304 male births per week; that is 43 male births on an average per day. Here, then, was a camp of about

two million of souls that had on an average 43 births daily: and had there been no sudden and great mortality from battle and acute disease; on an average 100 deaths per day; the latter largely in punishment for distrust and disobedience of Jehovah; and the former a sequel to this and meant to keep the proportion of males over 20 nearly up to the intended standard until the temporary ban on the nation was removed, when the Jordan was crossed. The main lesson of these episodes in the history of the early Hebrews is the evident importance of the Divine blessing and aid as Man's chief sanitary help; and as that without which the most perfect sanitary camp and personal arrangements, even although aided by skilled professional help, are unavailing to stem the tide of disease and death or other disasters that may come as the mandate of the Supreme. Indeed the entire early Hebrew history of this period shews few examples where disease or disaster of any other sort was induced directly by broken laws of hygiene. The plague resulting from surfeit (Numb. xi. 4), and that of the intoxicated Priests (Lev. x. 1) are two recorded examples it is true. The Hebrews of this period suffered often and severely by disease and otherwise: but this was usually sent as punishment for breaking Jehovah's other laws, spiritual, moral, social, &c.; and not specially for sanitary infractions. Indeed, the 16 recorded examples of rebellion and murmuring (Table 33) were mostly practically from aberrations, direct or indirect, of the Decalogue. Thus shewing again and forcibly that health, at least among those early Hebrews (and doubtless the same law still prevails) is not solely dependent on hygiene, even the best, most practical and philosophic, but requires the Divine blessing and aid to promote success. And it may further be noticed that it was very much then as it is now. Human nature in all periods and climes is much alike. It was chiefly or solely the Hebrews themselves that invited or incurred these troubles. So now it is chiefly the masses that stand in the way of hygienic improvements and sanitary perfection; in all the many different departments of life, mental, medical, moral, social, and spiritual; and mainly the masses that, by their obstinacy, wilfulness, refusal of control and advice, that bring disaster on themselves and the communities of which they form an integral part. The Hebrews suffered many disasters and punishments and diseases during the 40 years of the Wanderings. And yet how many preventive warnings they had! How little these sufficed to open their eyes to possible danger, and to the recognition of obvious and great sanitary truths.

The country to the east of the Jordan having been conquered and allotted to Reuben, Gad, and the half tribe of Manasseh, the time at last came for the subjugation and occupa-

tion of the largest part of Canaan, lying to the west of the Jordan. This noted river was at length crossed by Joshua and all the tribes; and thus they entered the true Promised Land. A material change had occurred in the Hebrew tribes, however, since quitting Egypt forty years before. But few remained of those who originally left that land of bondage fully hoping and longing to see and enjoy this fair country so long promised. Moses, Aaron, and Miriam had been debarred by various misdeeds and follies; and had died in the Desert. So had almost every one of the 603,550 adult males over 20, of the first or Sinaitic numbering. None but the faithful and truthful Joshua, Caleb, Eleazer the High Priest, his son Ithamar, and probably a few Levites (Josh. xvii. 4; xxiv. 33) of all that huge number were left and permitted to see and enjoy the land that was in time to come to be the scene of events so thrilling and momentous, not only to the Hebrews but to mankind. As our present theme is only the sanitation of the camp of the Forty Years Wanderings it is not in the province of these pages to cross the Jordan with the tribes; and follow them in their wars with and gradual conquest and eviction by Divine aid of the Canaanitish heathen tribes; namely, the seven nations "greater and mightier" than the Israelites (Deut. vii. 2), the Girgashites, Amorites, Canaanites, Hittites, Hivites, Perizzites, and Jebusites; whom the Israelites were destined to replace. These nations were excepted from the ordinary laws of war, and were, by God's command, to be utterly exterminated. Nor can we minutely follow the resulting settlement of the tribes, and their occupation of the different towns, cities, villages, and country districts of Canaan. These they did not divide as they fancied or desired, but as directed by Jehovah. Canaan was bounded by Jehovah (Numb. xxxiv.). Men were also appointed by Him to divide and apportion it among the tribes (Numb. xxxiv. 16). The cities which were to belong to the Levites, 48 in number (Numb. xxxv. 7); and also the cities of refuge, six in number, were also selected by Him (Numb. xxxv. 6). The entire arrangement was Jehovistic. Nothing was left to human fallibility or incompetence. All this necessarily implied the gradual exchange of tents, camps, and the old nomadic life for fixed houses and permanent settlement. It also included a change from camp hygiene to rural and urban sanitation, involving a totally different environment; for which, however, the comprehensive and elastic Sinaitic code of health laws was as well adapted as it was for the Desert; and for which, indeed, it was mainly intended, seeing that when it was delivered Jehovah intended that the tribes would soon enter and occupy Canaan by way of Kadesh Barnea: and that their tent-life in the Desert was merely a temporary interlude: the distance from

Horeb to Kadesh being under 200 miles, only an eleven days' journey (Deut. i. 2), *i.e.*, about 18 miles per day for camp travel. Perpetual camp life, such as theirs had been for forty years, with its frequent changes of position, has its advantages and its disadvantages. So also has still more stationary city life. It was the aim and object of the Sinaitic code to aid the one, and oppose unfavourable influences: and thereby maintain the highest attainable health; and this code was admirably fitted by its acumen, breadth, thoughtfulness, and beneficence, to accomplish the end for which the all-wise and ever-loving Deity designed it. Their life and hygiene thus and then became assimilated to those of other settled and civilized races; except in this respect that they possessed a sanitary system superior to any other then known, for it was Divine. The Hebrew camp must now have been much larger and not so easily moved as in early Desert days; mainly on account of their largely increased flocks and herds. We have no means of ascertaining the total census, except the second numbering of the males over 20. Although these had diminished, partly by deaths and partly by a diminished birth of males to supply their place, it does not follow that the number of female Hebrews had not increased by a larger increase of female over male births. This would both make the Hebrew census large and increase the possibility of the males again augmenting rapidly, as in Goshen. The work of driving out the Canaanites would keep the tribes busy and on the move for a time. But that accomplished, and the land occupied and free from strife, the Hebrews would gradually settle down to a stationary life; their worship and sacrifices, no doubt materially interrupted by their nomadic life and by warfare, would be resumed, genial healthy work would be engaged in, and with minds at ease and settled at last in their own homes, sanitary matters and health, public and private, would be more carefully attended to both by leaders and the people; an interesting theme, but one into which we may not at present enter.

Such then was Jehovah's camp and its sanitation. Both were patterns of perfection, as far as He could determine this point. And when this was marred it was by Man alone, the very being they were meant to aid and to educate. Such was the ideal Heaven-devised camp-city; and such the model public and private hygiene of Divine device; and meant to keep the Hebrews healthy, to prevent disease where it might occur, promote longevity, and the rapid racial development: matters, one and all calculated to make the Israelites a pattern people in health matters, as Jehovah's other laws were calculated to do in other and higher things; a model nation for other tribes and races to copy; a missionary and tuitional section of humanity

for others to follow. It would have been well for the Hebrews had they aided Jehovah in his lofty aims, instead of proving stiff-necked and rebellious. But for this stubbornness they would have continued to multiply as fast as in Goshen. Their adult males would not have left their carcases in the Wilderness but would have enjoyed Canaan in their old age. The tribes would not have been decimated by plagues, fiery serpents, earthquake, fire from the Lord, casualties in battle, &c., &c. While Jehovah's prowess and fear would probably have vacated Canaan without much or at least material loss of Hebrew life.

The Pentateuch discloses that during the whole of the Wanderings Moses had a hard task to make the unruly and self-willed Hebrews obey the Sinaitic code in its entirety. Can we doubt that it was also so with that important section of it, the sanitary? Even the public hygiene of the camp he would find it difficult to satisfactorily control. The private or individual sanitary code also was no doubt still oftener broken by this mass of ungrateful human beings, now being educated up from the degradation and illiteracy of slaves to the elevation of free men; and so many of whom consisted of women and children of the Eastern type, even less able to appreciate the benefits of judicious and effective sanitation than the men. No doubt it was the major rebellions and aberrations of the Hebrews that chiefly grieved Moses and made him wroth (Ex. xvi. 21) and again (Ex. xxxii. 19) and caused him to exclaim "what shall I do unto this people" (Ex. xvii. 4), as at Rephidim; "it is a stiff-necked people as at Sinai" (Ex. xxxiv. 9): "I am not able to bear all this people alone because it is too heavy for me," as at Taberah (Numb. xi. 14). But unquestionably it was, as with ourselves, the frequent daily minor troubles that fretted most this man of God, and made his specially bestowed meekness and forbearance with his people so necessary. Among these oft-repeated worries the sanitary breaches no doubt formed a considerable class. As with their higher duties, many of the congregation had ere long learnt these sanitary requirements well. But how often were they neglected and ignored till compulsion made them obey. It was fortunate that Moses had Aaron and his large staff of faithful and law-learned Priests and Levites to properly and scrupulously perform their onerous and hygienically dangerous Tabernacle sacrificial duties; otherwise camp and people might have suffered in health. And well also that each tribe had its princes and its captains, its rulers of thousands, hundreds, fifties and tens, all able men (Ex. xviii. 25), to help in the sanitation by their tribal authority. And well also that Moses had the wise 70 elders to aid him with judicious counsel (Numb. xi. 16). If Moses had been unaided it would have been difficult and doubtless impos-

sible for him to carry out even the sanitary requirements; let alone the other and higher laws donated at Sinai for the general and individual Hebrew welfare.

The entire record of the Israelitish Wanderings is a sad one, and consists of frequent unreasonable murmurings, rebellions, and waywardness; gross ingratitude and distrust, notwithstanding the constant and oft-repeated proofs of Divine power and care, and repeated punishments for backslidings, both of which, instead of softening and subduing, only seemed to harden and render more ungracious the obstinate hearts of the Hebrews. It seemed that the more the tribes were humoured and the more kindly they were treated, the worse they seemed to become; so that not unfrequently but for the intercession of Moses, even the forbearance and long-suffering of their Maker would have been exhausted, and He would have made an end of the nation, and from Moses raised a new race that might serve Him and His purpose better than the Hebrews promised. Not long before the end of the Wanderings they seemed to become of a better frame of mind when "discouraged (grieved) because of the way" (Numb. xxi. 4), their stubborn wills seemed to break or unbend and yield to the inevitable and to the stronger sway of Jehovah. But alas theirs was not a Godly sorrow, but self-will and discontent in another form that again required severe correction (Numb. xxi. 6). They had not yet learnt implicit obedience and trust in Jehovah. In order to teach the Hebrews His laws how often He had to afflict them. How stubborn was their scholarship.

The regularity, system and order that formed so prominent a factor in all that appertained to the Hebrew camp, is only a feature in, allied to, and is in fact a part and portion of all with which Jehovah has to do; and of what prevails throughout nature. It is the leading lineament in the repetition of the seasons, the tides, the night and day, and, above all, in the marvellous and stupendous machinery of the star-bestudded heavens. Proper arrangement is indispensable to their continuance; and it is as necessary in the smaller as in the larger operations of Nature. It is as necessary in living things as in inert matter. It is as necessary in the physical or invisible as it is in the visible or physical world. It is equally necessary for the welfare and life and health of Man, a being which belongs to both of these worlds: as necessary in his spiritual, moral, social, and mental life as it is for his physical and physiological existence. So it is equally imperative as a leading item in all his health and hygienic systems. Hence it is why the laws of hygiene were included in the larger Sinaitic code; why they were inculcated and compulsorily enforced by the Divinity by the agency of Moses, in order that they might ultimately be

voluntarily performed by mentally and spiritually enlightened intellects: and all the many correlations and intertwinings of the psychical and the physical departments of human sanitation, not only logically perceived and appreciated, but also voluntarily followed; to be necessarily aided, according to promise, which never fails or forgets (Ex. xx. 6; Deut. v. 10). The system and regularity in physical and sanitary matters taught so imperatively in the Hebrew camp, moreover was typical and tuitional of that which ought to prevail in Man's higher spiritual, moral, and social nature, but it was also educational of the benefits, sanitary and otherwise, of that which is the result of persistent and continuous system and order in all things connected with the due maintenance of health and life and the prevention of disease, premature decay, and of early death. Physical regularity and order in bodily affairs are, like physical cleanliness, suggestive and tuitionary, this of the higher purity of soul, heart, and home, and these of method in holy things; and vice-versa; both being prominent factors in human sanitation, Divine and lay. Compulsory camp order and cleanliness, the two most prominent factors in the regulation of the Hebrew camp, were perhaps primarily and largely typical. But as truly were they sanitarily educational. And in both matters that which was at first compulsory would sooner or later be received as practically utilitarian, healthy, and therefore wise, advisable, and voluntarily followed; the typical ordinance once begun would in its turn indoctrinate the physical sanitary processes and ideas. Holiness and health would thus become intertwined, inseparable, and united by the twain factors that dominated both.

Beyond the mere record of Jehovah's laws of sanitation, the Pentateuch, in addition to directions more or less closely connected therewith, gives few details or even hints by which we may judge of how either the public or the private hygienic laws of the Sinaitic code were carried into effect; or the degree of public obedience thereto. One special instance, however, occurs, in which typical is clearly blent with medico-hygienic cleanliness, during the latter part of the Wanderings; that gives us a pretty clear insight as to how the public Sinaitic laws were enforced by Moses. This occurs after the defeat and punishment of the Midianites, an incident specially ordered and aided by Jehovah (Numb. xxxi. 1) for having led the Hebrews into idolatry and licentiousness; and after the gross disobedience and cupidity of the latter in the matter of spoil (Numb. xxxi. 25). The 12,000 deputed warriors (Numb. xxxi. 5); no doubt considerably lessened by slaughter, were ordered by Moses on return from battle, to abide without the camp for seven days. "Whosoever hath killed any person and whosoever hath

touched any slain *purify* yourselves and your *captives* on the *third day* and on the *seventh day*. And purify all your *raiment*, and all that is made of *skins*, and all work of *goats' hair*, and all things made of *wood*" (Numb. xxxi. 19). And on the same occasion Eleazer the Priest said unto the men of war, "This is the ordinance of the *law* which the Lord commanded Moses; only the gold, and the silver, the brass, the iron, the tin, and the lead, everything that may abide the *fire*, ye shall make it go through the fire, and it shall be clean; nevertheless it shall be purified with the water of *separation*: and all that abideth not the fire ye shall make go through the water. And ye shall wash your clothes on the seventh day, and ye shall be clean, and afterwards ye shall come into the camp" (Numb. xxxi. 22, 23, 24).

The object of this "ordinance of the law" (Numb. xxxi. 22) is clearly threefold:—

1st. That it was, and that it was doubtless mainly *typical*, is shewn by verse 23, "Nevertheless it (articles) shall be purified with water of separation." This was imperative, even after washing with water, and doubtless also after going through the fire. At an early stage of the Wanderings, namely at Sinai (Ex. xxiii. 33) the Hebrews were commanded to keep strictly aloof from other nations. This was mainly to prevent spiritual, moral, and social contamination, degradation, and ruin. In spite of this they were enticed and seduced by the Midianites of Shittim (Numb. xxv.), who led them into grievous idolatry and licentiousness, and now again indirectly into fresh disobedience of Jehovah's edict (Numb. xxxi. 14). It was necessary to stop this; not by giving a mere command, but by enacting a "law." The Midianitic episode and previous events of the wanderings had proved that the Hebrews could not be trusted, were easily led astray. Their contact with the Canaanitish nations—even worse idolaters than the Midianites—was approaching and increasing. Hence the old rule was re-enacted and emphasized by being codified; shewing the Israelites that intercourse with forbidden nations was not only degrading but sinful. This was clearly the main object of the seven days' isolation of the warriors and their captives; also of the purification by washing of their bodies, clothing, and goods; and the disinfection by fire of metallic articles. All this physical cleansing was mainly typical of perfect and complete purity, spiritual, moral and social. Important as physical cleanliness is, it is far surpassed in value by purity of soul, heart, morals, and the home.

2nd. This isolation or banishment to the outskirts or beyond the camp for seven days, of so many strong fighting men, flushed with victory and laden with spoil; combined with purifications and washings, which they might deem unnecessary, irksome, and useless: instead of a home welcome and perhaps a feast would have the effect:—

a Of making war distasteful; and a tax more than pastime or pleasure.

b It would tend to make the Hebrews think, and elevate their moral and mental standard above that of merciless, war-loving heathen nations; and would thus humanize them.

3rd. Viewed in the light of modern times, this isolation and specially enforced physical cleanliness was not solely typical of spiritual, moral, and social purity; or the one meant alone to symbolize and inculcate the other. It was unquestionably sanitary also; and another example of one Divine law being made to accomplish several very different yet most important purposes. This "law" involved the enforcement of three of the most important sanitary rules to prevent individual and communal contamination and infection. These Midianites and the Canaanitish nations were neither sanitarily educated nor inclined. Lack of Godliness almost invariably results in lack of cleanliness. This extended to every department of life; spiritual, moral, social, and corporeal. And then, as now, evil communications and examples are more contagious than good ones. To imbibe a lack of cleanliness was practically to remove the chief foundation stone of the whole science, art, and Divine law of sanitation. This had to be stopped. Moreover, the acute contagious diseases, no doubt as much dreaded then as now, and especially prone to attack unclean people and tribes, had to be guarded against and kept out of the Hebrew camp. Nor are these the only contagious diseases, or by any means the least subtle, the Hebrews might thus introduce into the congregation, and their families, to the deterioration and perhaps physiological ruin of both. It should be noticed that the captives and their goods were also kept out of the camp. Doubtless these strangers would have been isolated by being kept out of the camp, in any case. But the law also ordered these (v. 19) to be likewise "purified" on the third and seventh days. In short, the Midianite captives had to undergo exactly the same

ordeal as the Hebrews themselves; and perhaps this was more carefully done. This included:—

a *Isolation* out of the camp and separation from family and friends for seven days.

b *Purification* by cleanliness and washing of the body, raiment, utensils, clothes, and belongings, especially hair, clothing, skins, wood utensils. These were one and all apt to attract, imbibe, conceal, and retain microscopic germs of disease.

c *Sterilization* and disinfection by heat of what would "abide the fire" (Numb. xxxi. 24). That is complete destruction by cremation of lurking disease germs.

It follows that at the end of these seven days, when all this was effectively done, that—

a Any germ of contagion or infection would then have, in most cases, been removed or minimized by repeated washings or cremation, from the infected persons or things.

b Any latent or slowly evolved disease would be likely to have manifested itself then.

c If any contagious disease was then apparent, local or general, it could be at once judiciously handled, and either medically treated or isolated to prevent its spread to others.

Moreover, the trouble and inconvenience all this implied and involved would be an apposite sanitary lesson; and one likely to aid, by voluntary acquiescence, the enforcement of isolation for other unsanitary, uncleanly, and perhaps diseased nations; *e.g.*, those in which leprosy prevailed.

The account of the vitiation of the Hebrews by the Midianites, and the resulting punishment and practical ruin of the latter nation, estimated at over 300,000 people, by the very people they had sinfully enticed; an act by which Jehovah's ire was so aroused both against the victims and the victimized, is interesting in studying the public hygiene of the Israelitish camp: especially as it furnishes indirect, yet satisfactory proof as to how the Hebrew sanitation was carried out. The above "law" of combined typical and sanitary procedure after battle was evidently strictly enforced by Moses and scrupulously obeyed by the people, and without demur from individuals or the community. If it had been disobeyed or evaded the fact would have been recorded or at least hinted at; because the occasion and lesson were both eventful and important. So that from this indirect source we may gather that Jehovah's edict

was strictly obeyed. And also conclude that it was generally if not always so, in all matters of public sanitary discipline, both when mixed, as in this instance, with a typical aim and object, and when unmixed and therefore entirely sanitary. Although possibly in matters of private sanitation the Hebrew authorities may often have been less successful, where self will and individual opinion are often paramount, as often occurs at the present day.

It may be laid down as a law that no individual or nation is likely, of their own intuition, to take the trouble to follow even the ordinary and the simplest laws of sanitation, until made aware by the combined result of education and experience of the practical value of these laws of health. Still more likely are individuals and nations to appreciate and follow these sanitary laws, when secularly enlightened regarding their value and also cognisant that the laws now spoken of are the laws of God and nature; equally imperative, and equally punitive when broken; and who therefore receive and follow them mainly on the latter account. Moses, acting for Jehovah, was endeavouring to teach the Hebrews both Man's secular and his Divine duty regarding them. Fortunate nation to have had two such instructors; the all-wise, infallible, beneficent and paternal Creator; and their patient, patriotic, and talented leader. The Divine Sanitarian, and His deputy. Lack of complete appreciation of the sanitary laws of Sinai on the part of the Hebrews does not detract from their value or lessen their profundity and excellence any more than does the gross unwisdom of the same people regarding almost every one of the Sinaitic sub-codes detract from the beneficence and love and magnanimity of the Deity by bequeathing so valuable a legacy.

As the Sinaitic sanitary code was meant to make and to keep the large congregation of sanitarily ignorant and debased Israelites healthy; and to do the same for their camp and its central Tabernacle: as it was also intended to make them a model people in health matters and in sanitation, to other tribes, living and prospective: how necessary was it that the system of sanitation on which these lofty aims were to be based, should be superlative. Hence why the sanitary system they were ordained to follow was framed by the Deity, the only being capable of conceiving and codifying a "perfect" plan (Deut. xxxii. 4): and the only one sufficiently interested in the Hebrews for their own sake (Ex. vi. 3-4); and in the human race generally, whom the Israelites were to be the instruments to instruct. And, again, as the Hebrews, notwithstanding all that Jehovah did for them and the many clear and distinct proofs of power manifested in demonstrating this deep love (Deut. vii. 13); continued to be a stubborn, unruly and self-

willed race; how important it was that Moses, the Man raised to lead and instruct them, should be:—

a Superlatively meek, patient, and forbearing to mould and lead them educationally.

b That he should be an educated man, capable of instructing them, and of bringing the erudite and far-reaching sanitary laws of God down to their intellectual level, so as to make them both appreciate and obey.

c A militarily instructed man, himself educated into that precision, regularity and system necessary for all efficient public sanitary efforts.

d That he should also be a man versed in science, and especially medical lore; one capable of appreciating the depth and value of the Divine sanitary revelations of Sinai; and thereby of zealously carrying them into practical effect; thus to aid his leadership by fully attaining the thrice beneficent ends of this particular law code.

e That he should also be a God-fearing, God-serving, and God-loving man and patriot: with Jehovah's work and His people's welfare as his highest aim, and God's esteem his chief desire.

In teaching the Hebrews camp sanitation and other sanitary laws Jehovah employed not only didactic but also practical instruction. Not only did He devise and formulate and divulge curt yet clear and concise sanitary rules for mankind, but also directed those whom He had set apart as His special servants, to revere and study these laws, namely Moses, Aaron, the Priests, and Levites, to read and expound them to the people: but He also ordained that they should be strictly enforced; disobedience or neglect being chastised by the infliction of disease as well as by civil or ceremonial punishment; and also commanded that those should be aided by the lay help of the elders, princes, and captains of each tribe. This popular instruction, moreover, was certainly meant to conduce to the knowledge of several other great and vitally important truths; unrecognized by the more illiterate Hebrews, but clearly seen by the more astute Moses; these were—

1st. That the sanitary laws of the camp and otherwise were, as were the souls, bodies, life, health, nationality, and all else that was Hebrew, were one and all bestowed by Him who was both nationally and individually their maker, preserver, God, guide, father, and friend. That this sanitary code was the best that they or any other people of that day could find or obey; because it was an emanation from eternal wisdom and the Divine and only all-knowledge.

2nd. That as free entities, the Hebrews were left to follow or to neglect these sanitary laws, as they pleased: but that, as with all other Divine laws, while obedience had its reward, infraction had its punishment.

3rd. That, while Jehovah would materially aid such as took His advice and obeyed His sanitary commands; His wise procedure had to be supplemented and initiated by their own personal or public sanitary efforts. In other words self-help is or should be not only the primary but also the main agent in all sanitation.

4th. That Jehovah has not only made the sanitary forces and devised the laws of sanitation, and established them as part of His other manifold laws of creation or nature; that is His "works"; but also bestowed the physical, vital, spiritual, moral, mental, and other agencies necessary to carry these into effect. In short, Jehovah constantly and everywhere inculcated during the Desert-life of the Hebrews, that they owed everything in and beyond life, and even themselves to Him; were dependent on Him alone for existence and all else; and, in short, to use the language of a later day, that "in Him they lived, moved, and had their being" (Acts xvii. 28). Thus, while Jehovah made judicious laws for Hebrew dieting (Lev. xi.; Duet. xiv. 4) He also shewed them that they owed their food supply in proper quantity, quality, and kind solely to Him (Ex. xvi. 2), while inculcating the ulterior lesson of the indispensable value of food to Man. So also of their water supply (Ex. xvii. 3). So, too, of their clothing (Deut. xxix. 5). And everything else; for during the entire Forty Years Wanderings the Israelites "lacked nothing" (Deut. ii. 7). While again, by inflicting disease He shewed that health was also in His power (Numb. xii. 1; xiv.; xxi.). By disasters, like earthquake and fire from Heaven (lightning?) He taught that even life was continued at His will (Numb. xvi.; Numb. xi.; Lev. x. 1). By the punitive prolongation of the Wanderings at Kadesh and death of the rebels ere Canaan was reached, by the individual adversity of Korah, Nadab, &c.; and by the counter prosperity of Caleb and Joshua; He shewed that Man's earthly position and career are also in His Divine hands. The defeat of their many foes, such as Pharoah, the Amalekites, Midianites, &c.; and by the counter Hebrew defeat at Hormah He shewed that national life and prosperity

and even existence are all likewise swayed by Him. Moreover, the major tuitional outcome, idea and lesson of the whole of the Wanderings was to inculcate that the moral, spiritual, and social standing of the Hebrews in time and their outlook for eternity were also dependent on Him and His approval, as a supplement to their own personal conduct.

5th. Had the bulk of the Hebrews been wise and God-fearing, and more amenable that they unfortunately were to the Divine ideas and education, the majority of the nation would probably have grasped the full idea, as Moses and Aaron no doubt did, that the sanitation of their camp and that of its central Tabernacle are only integral and necessary parts of the larger general system of Divine sanitation, public and private, devised and codified by Jehovah, and bequeathed primarily for the Hebrew benefit, but meant secondarily and far more widely for the medical education of other nations, and therefore embodied by Moses in the Pentateuch with the rest of the Sinaitic law. And they would have further understood that this medical sanitation for the human frame, thus incorporated in the larger and more comprehensive code, forms an integral and inseparable part of a far wider system of sanitation: one which embraces Man's higher and indeed his entire nature; the main object of which is to keep his soul as well as his body sound and healthy; to preserve his spiritual, moral, social, and racial nature from contaminations and aberrations, that is from sin or soul disease; even as the medico-sanitary rules are meant to keep his physical frame from bodily ailments and other disasters. They would have seen that these objects are Divinely legislated for by the spiritual, moral, and social decalogue, and by various other codes, civil, communal, political, and otherwise; codes that have one and all both a preventive and a curative object, a sanitary and a sanatory aim, to aid the existence, health, hygiene, and welfare not only of individuals but also of camps, communities, nations, and the race; sanitary laws that are one and all indissolubly intertwined, correlated, interdependent, and inseparable. Of these two aims, evident in each one of the subcodes of the larger Sinaitic code or so-called "Law of Moses," the sanitary, prophylactic or preventive is by far the more important of the two: and hence it is this and not sanatation or healing that Jehovah, the

great teacher, initiated and mainly taught in the multiple-coded laws of Sinai. Among the rebel races of a fallen world like this, where both sin and its manifold results, bodily disease included, are already introduced and rampant, both their cure and prevention are absolutely necessary: but of these two aims the introduction of a medico-sanitary code for the prevention of bodily disease, while its cure is thrown entirely into the shade by lack of notice, and its insertion into the wider and fuller Sinaitic code, as one of its chief factors and designs throughout, shews that Jehovah deems prevention of body disease as He does prevention of soul disease or sin, as by far the most laudable and desirable and philosophic object and endeavour; and therefore that most likely to have His Divine aid and blessing. It is this judicious combination of laws, fitted both for the prevention and the cure of sin and disease, that makes that beneficent, comprehensive, masterly, and Divine emanation from Heaven, the Sinaitic code, so admirably modelled and fitted for the many-organed and functioned human frame, and for the many and much diversified phases of human life. These are the lessons that ought to have been the great and universal result of the Hebrew Wanderings; and of all the many noted events that were crowded into this comparatively brief yet eventful forty years of early Jewish history, passed in the Hebrew camp over 3,000 years ago.

It will thus appear from the preceding critical study that the Hebrew time during their sojourn in the Desert, was neither wasted nor mis-spent, but usefully employed by their Divine Educator; and that their community was a huge school in which the many different grades, ages, and intellects of that vast assembly of chosen people, were individually and nationally taught many things of a highly elevating character, that were meant to raise and re-habilitate them, and by them other nations and the entire human race: so that mankind might thus be ultimately restored somewhat to his pristine or Edenic condition; a plan that doubtless would have succeeded if Jehovah's supernal beneficence and love had been zealously met and aided by those whom it was meant to benefit. To promote this great end they were here gradually being taught certain great and fundamental lessons. Not the least important among these were the sanitary hints and proofs of the manifold benefits that either directly or indirectly flowed from the different arrangements of the Hebrew camp; which are thus not only of hygienic interest and value, but also distinctly instructive, indi-

cative of the deepest wisdom, forethought and design on the part of their august author; and hence in many respects worthy of the closest study, if not imitation. These practical points in which the Israelites were instructed over 30 centuries ago; and which as Scripture are clearly recorded for our instruction and correction, may be briefly summarized thus:—

1. The parallel or regular and invariable principle in which the tribes were commanded by Jehovah to camp; a system no doubt carried out in the tent-pitching of each individual tribe; with its resulting wide passages, streets, or alleys, crossing each other at right angles promoted many objects, all more or less hygienic or health-promoting: thus—
   - *a* It permitted orderly and easy intercourse and traffic. So arranged, the camp was neither a labyrinth nor a maze. Any tribe or tent could be at once located and reached by this regularity and the ordinary compass knowledge of everyday life. The advantages of this are perhaps best seen by contrast with the narrow, crooked, intricate lanes of many old cities, especially Asiatic ones; and by the wisdom displayed in the wide, straight, parallel streets of many modern cities, and the newer parts of old communities.
   - *b* This plan favoured the chief sanitary agent, cleanliness, by permitting the ready removal of all offensive debris, sacrificial, camp, and otherwise, from Tabernacle, tents, and streets.
   - *c* It favoured ventilation of streets and tents, and thus aided the public health. From whichever quarter the wind blew it would freely and fully sweep the vitiated atmosphere out, and replace it by purer air, uncontaminated by morbific or malodorous exhalations and excretions, human, animal, or vegetable.
   - *d* Each individual could readily find his own tent or tribe or any others. So also with the special tent for medical inspection or treatment. So also with the lepers camp for avoidance; the Tabernacle; High Priest's tent; that of Moses; the camp exits to the fields, gardens, burial ground, flocks and herds, cloacinæ, &c. In all such matters, regularity, system, and order have decided sanitary outcomes.

e Easy public transit clearly favoured the orderly gathering and carriage of food, such as quails and manna, vegetables from their extra-camp gardens; as well as the water supply, and other social, civil, and sanitary functions appertaining to community and camp life.

f It favoured access to and exit from the Tabernacle; a precaution especially necessary and sanitary where there are crowds.

g It aided the transit of the animal sacrifices to, and the removal of their debris to the outside of the camp, to be disposed of; and thus promoted general camp and Tabernacle cleanliness, by speedy riddance of an especial danger.

h It gave easy and inviting access to the Desert beyond for solitude or recreation; both of great sanitary import.

2. The regularity, abundance, and judicious nature of the Hebrew food-supply promoted health, public and private; and aided the good influence of the general camp sanitation.
3. Camp health and hygiene were materially aided likewise by the abundant supply of the purest water, which the Hebrews enjoyed; eminently sanitary for drinking, cooking, and cleanliness of body, clothing, &c.
4. The primary or original Desert air in which the camp was pitched was exceedingly pure, balmy, healthy, dry, and admirably adapted to dilute, carry off, diffuse and render inoccuous, impure airs emanating from individual tents and the huge camp, with its cattle-environed outskirts, infectious colony, burial ground, and other conveniences.
5. The purity of the general camp atmosphere would be preserved to a certain extent by *a*, the lung ventilation of the Tabernacle; *b*, good street ventilation; and *c*, street cleanliness; *d*, non deposit of refuse in the camp; extra-camp burial; all of them matters of hygienic import.
6. Public and private safety were ensured, and therefore general anxiety promoted and mental quietude promoted, all matters of sanitary import, especially where there are women and children; by the tribal camp arrangement: viz.—

a The sacred Tabernacle, God's dwelling, was central and safest.

b The non-combatant Moses, High Priest, Priests and Levites were camped instead and in least danger.

c The warriors or protective cordon were camped outside, to face the greatest danger.

7. Instant isolation of unclean and loathsome ailments (Lev. xiv. 3), and the immediate banishment beyond the camp of infectious or contagious cases such as leprosy, actual or suspected, was highly sanitary. This prevented the spread of disease, as the ailing were kept isolated till the leprosy had gone (Lev. xiii. 46; xiv. 3; Numb. xii. 14-15). Captives in war were compelled to remain outside, for the double motive of social and sanitary isolation (Numb. xxxi. 19): to carry out the law of Hebrew segregation and to prevent contagious or diseased contact and sanitary danger.

8. Cleanliness, the basis of all sanitation, was further promoted by various other hygienic measures in the camp: thus—

a By burning the blood and other refuse of sacrifices, &c., outside the camp, which prevented putrefaction and the risk of disease (Lev. iv. 11-12; vi. 11; viii. 17). Even the cremated ashes of the sacrifices were taken from the Court of the Tabernacle to a special place outside the camp, to promote cleanliness. So also the young bullock for the sin offering was not left to decay but was burnt outside the camp (Lev. iv. 12).

b Burying the dead outside the camp was a highly sanitary camp law (Lev. x. 45).

c The indraft and uptake and ventilation caused by the burning of sacrifices in the Tabernacle was a sanitary help to camp healthiness.

d The incense burning aided this renewal of air; and was moreover aseptic and therefore sanitary for the whole camp.

e The execution of criminals not in but beyond the camp (Lev. xxiv. 14; Numb. xv. 35-36) was sanitarily wise; because besides obviating unseemly morbid curiosity, it also prevented overcrowding, irregularities, and uncleanness in the camp and among the tents, all unsanitary.

9. While physical sanitation was thus assiduously promoted, spiritual, moral, and social hygiene were also well cared for, and kept in constant remembrance by the presence in their midst of Jehovah's earthly dwelling place, which typified that He who dwelt there was the sun, centre and source of their existence; and His love, glory, and worship the main object of each individual life. Soul, heart, and body hygiene are closely intertwined and mutually helpful. Godliness not only teaches but incites to cleanliness, not physical and bodily alone, but also to purity of heart; and vice versa.

10. As the nation was intended to be a model one, not only in Godliness, but also in all else that makes a people truly great; hygiene included; so the entire camp was a model in sanitary as well as in military and social arrangement; in which both the individual and the public were one and all fully cared for.

11. As the most thorough cleanliness, order, regularity, and obedience were the chief aims and characteristics of the Hebrew camp; in order to effect these, each person, family and tribe had its special duties. For these each was responsible and compelled to implicitly obey without excuse or evasion: especially as they were one and all assigned by the Supreme.

12. While on the march the Divine arrangements and regular order of this were as conducive to public safety, convenience, health, and general sanitary perfection; as was the fixed camp. It was the best that could be devised for the Tabernacular and general safety. The largest and most warlike tribe, Judah, led the van. That tribe had now become what Jacob had prophesied on his death-bed; "the lions whelp, lion and lioness; whose hand was to be on the neck of his enemies; from whom the sceptre was not to depart; and who was to be victorious over all his enemies" (Gen. xlix. 9). So also when Moses blessed the different tribes before his death, Judah had kept his reputation and was still the warrior tribe of the twelve (Deut. xxxiii. 7). Dan with the next highest number of warriors brought up the rear. Dan, according to Moses, was the "lion's whelp" (Deut. xxxiii. 22); and the stealthy fighters (Judges xviii.) On the other hand, the Ephraimites who "turned back in the day of battle" (Ps. lxxviii. 9) occupied a minor place on the march, evidently because they could not be trusted, and marched with the smaller tribes, the

women and children, Priests, Levites and Tabernacle in the centre. All this contributed to ease of mind, and that again, in itself sanitary, materially aids other sanitary factors and contributes to health.

a Changing camps gave the Hebrews that highly sanitary agent employment; something to do, and think about, and plan for; and prevented inert, lazy, idle and unhygienic habits.

b It gave the people variety and change of scene and work; a most potent hygienic agent.

c Each removal would generally bring them nearer their final goal, the Land of Promise, which would inspirit and give them hope of an early settlement, and would thus prove sanitary and healthy. Each removal away from the straight route would doubtless seem punitive and disappointing.

d Camp moving obviously promoted cleanliness. A long stay of two millions of people and much cattle would physically contaminate the camp and its environs. Refuse, sacrificial and otherwise, would accumulate. Each change of base would give a new and clean surface and an improved sanitary outlook. It would be well if some of our cities could be similarly treated.

e The march of the tribes, not in a confused, irregular and unruly crowd, or in a mass, but in orderly fashion, singly, and in line, promoted due æration, ventilation, and a healthy supply of pure air. It also facilitated regular, that is healthy, dieting; a proper water supply, and prevented insanitary over-crowding and unclean habits. The cattle would be similarly benefited as to cleanliness, a new food and water supply; and, again, their cleanliness and health would beneficially influence the sanitation of the adjacent camp and congregation: especially towards the end of the Wanderings, when the flocks and herds must have increased enormously (Numb. xxxii. 1), and made the camp outskirts correspondingly impure and odoriferous.

13. The many comforts and blessings the Hebrews enjoyed in the Desert; that were marred and minimized alone

by their own folly, and that included freedom, peace, prosperity, safety, a full supply of all they lacked, their well-doing rewarded, and the evidence of the many miracles performed for their benefit; all ought to have tended to increase their trust, confidence, and faith in God, in whose hands they clearly saw were their life, health, happiness, and prosperity; and no doubt helped other agencies to promote the highest sanitary standard, both individual and national.

14. The good example of their incomparable earthly leader, Moses, so sage yet so meek, so holy and so honoured of God as to be admitted to His presence, regarded as His friend, allowed to share His counsel, to plead and even reason with Him (Ex. xxxii. 11; Numb. xi. 11; xii. 14; xiv. 13), and to be the receiver and transmitter of His laws and commandments: and, above all, his example of deep piety and humility in his never-to-be-forgotten decision "as for me and my house we will serve the Lord" (Josh. xxiv. 15); a declaration that involved and included a strict obedience of all Jehovah's laws; those we have been considering, included; were all tuitionary to the whole mass of the Hebrews. Nothing teaches so surely and deeply as a good example. Nothing is so eloquent and efficacious in the sanitation and health both of soul and body. This free, independent, simple and pure nomadic tent-life of the Desert was one method by which God educated these descendants of Abraham in hygiene and other things; and of shewing them by practical illustration that this form of existence, broadly viewed, is the healthiest and the best, under favourable hygienic circumstances. Above all it gave Jehovah the opportunity of proving incontestably to the Hebrews what it is difficult for most people to fully and easily realize, namely, that Man is dependent on Him for everything, both earthly and eternal, and among other things not only for their life, health, and themselves, body and soul, but for the sanitary laws necessary to keep these boons or "talents" (Mat. xxv.) given each individual to tend, and for the care of which we shall personally be called upon to account. For assuredly He who made and manages His creation so carefully and efficiently, Man included, and Man especially; He who alone compasses all knowledge, the science and art of sanitation included; and who necessarily delights in and helps those individuals most who most deeply study and believe and appre-

ciate His wonderful works and masterly methods, will aid, by His personal assistance, all who are willing to be so instructed either from His Divine Word or His equally supernal works, or from both: two books which never disagree, but are mutually corroborative on every point.

15. In the Desert the Hebrews were fully learning those three great virtues, obedience and patience and system: all abundantly necessary in life, and in all sanitary work spiritual or physical; imbibing them by Divine tuition and Mosaic example.

16. They were also having inculcated by this forty years' strict schooling the great and mutually inter-dependent laws and methods of spiritual, moral, social, and medical hygiene; human hygiene in its widest sense and aspect; the science and art of sanitation for the whole entity of Man; and for mankind of every age, colour, and clime. The great object of Jehovah in the education of the Hebrews in their Desert life was "to humble thee, prove thee, and to do thee good at thy latter end" (Deut. viii. 18). They themselves made much of it unpleasant, and did this unnecessarily by unruly conduct.

17. The Hebrews ought also to have learnt from their Divine hygienic instructor that the human soul and body attain and maintain their highest health and vigour, longevity, comfort, felicity, and prosperity when they obey, not one but every law, not one but every one of the permanent codes divulged at Sinai, by the Being who created us, the God by and from whom we came, to whom we belong, and to whom we shall ultimately return, for praise or blame, punishment or reward, as each individual life merits.

18. The Israelites of the Desert ought to have learnt that the ultimate aim of their education in sanitary subjects and all else, is two-fold, like all other component parts of God's creation, small or large, near or distant; namely, His glory; "for as surely as I live all the earth shall be filled with the glory of the Lord" (Numb. xiv. 21-22): and secondly, for Man's benefit; initially for the Hebrew welfare, that errant yet well-beloved nation whom Jehovah had promised "to make and help to go upright" (Lev. xxvi. 13); re-

garding whom He promised "I will walk among you, and will be your God, and ye shall be my people" (Lev. xxvi. 12-13); and through the Israelites for the good of mankind at large, whom Jehovah still loved, notwithstanding their rebellion and apostacy, and would fain save both from earthly and from eternal ruin. Is not "it is He that teacheth man knowledge" (Ps. xciv. 10), a truism that will outlive our race? And has not the advent of a day been prophesied when we "shall all be taught of God" (Is. liv. 13)?

19. The Hebrews of the Desert were constantly being taught, by the strict daily teaching and enforcement of the laws of sanitation as well as by the other Sinaitic law codes; that, with a view to promote and prosper these manifold and all-important objects now spoken of, Jehovah was ever present with them when satisfied with their conduct (Ex. xl. 34; Ex. xii. 10); as He still is with each and all who faithfully, though humbly, love, honour, and serve Him. "For the Lord thy God walketh in the midst of thy camp, therefore shall thy camp be holy" (Deut. xxiii. 14); the behest that came from Sinai; was re-iterated in Judea (St. John xiv. 23); and not to the Jews alone but to us.

20. No doubt the result of this forty years' strict and persistent sanitary, didactic and practical education on the Hebrews was successful; and that by it, both spiritually, morally, socially, intellectually, and medically they reached a higher plane at the end than they did at the beginning; when, as the result of prolonged slavery and degradation many of them were doubtless both ignorant and debased both in soul and body. Alas, obstinacy and stupidity on the part of the free agent, Man, who looked more to the present than the future, and too oft preferred present pleasure, sin, and their own way to safety for eternity, marred the Divine plans regarding them and their mission; even as the far back folly of Adam and Eve did in Eden; and as, still later, did the imprudence of their offspring before the flood; and as again did Noah's descendants before the Dispersion. So far, Man's free-will in most cases led to his fall: or at least to an inferior acceptance and fruition of God's beneficent laws, those of Sinai. Is it not much to be regretted that, like one of their own number in subsequent days, the Hebrews were not so humbled and instructed by

these repeated and severe punitive lessons of the Desert, as to be able to say "it is good for me to have been afflicted that I might learn Thy law" (Ps. cxix. 71). They were indeed frequently sorely afflicted. But yet all through these various disasters, directly or indirectly meant to teach and enforce God's laws, they continued to again and again presume on the Divine love, friendship, forgiveness, and promises, and to impiously repeat their sins and follies. Had it been otherwise, and if they had obeyed Jehovah's commandments strictly and always, how much better off that nation would have been then; and how differently situated now.

Many of the sanitary rules and arrangements of the unseen and Divine leader for the Hebrew camp; though apparently perhaps to medically uninstructed minds so simple that they are apt to be despised, are really the most philosophic, practical, and best that could have been devised. Viewed with candid and unbiassed minds, are they not superior to any which our best modern intellects could suggest for the same purpose. Nay, are not the arrangements of the Hebrew camp, hygienic and otherwise, of over thirty centuries ago, such as might furnish most important and practical hints to many a modern general, organizer of military and civil expeditions, and experts in planning cities and other communities; and ideas which they need not despise, or be ashamed to imitate or copy? Where is the camp or community, even in the most sanitarily enlightened of modern countries that might not glean many a highly practical and efficacious hygienic lesson or hint from the ancient Hebrew camp of the Desert? How many of its pertinent regulations might not be wisely adapted, for example, by the oft thoroughly unsanitary cities of Asia at the present day; and even in regions and in dwellings where the laws of Sinai, or so-called laws of Moses, are supposed to reign supreme and are fully received as Jehovah's commandments?

How the Hebrews of the Wanderings profited by these Divine Sanitary laws, we glean to a certain extent from their history as detailed in the Pentateuch. No doubt their obedience and the reward both fell short of what Jehovah desired. How their successors profited, it is not within the scope of these pages to enquire into. A far more pertinent question seems to be this, whether we of the present day, intellectually so much more advanced and enlightened than were the Jews and other nations of Mosaic times; can we, Gentiles and Jews included, learn in any respect and profit by them? Has our modern

knowledge corroborated or has it rendered them obsolete; or can we still accept and utilize them, not only because they are part of God's Word; but also because we know and have discovered that they are true? and not applicable for the early Hebrews alone; but equally available and useful to us?

Notwithstanding our modern, wide, and deep grasp of knowledge; and our learning so very much in advance of that of the days of the Wanderings; no one will aver that the world's education is complete. Mankind has still much to learn and not a little to unlearn and revise: and many subjects and ideas even regarding the sanitation of camps and camp life. Nay, there are not a few medical matters, and especially those of hygienic nature, that may still be improved by a careful and critical study of the so-called sanitary code of Moses; that code which is in reality an emanation of the perfect knowledge, infinite mind, and loving heart of the Divinity; that beneficent, God-begotten, heaven-devised, and personally delivered revelation, called the Sinaitic; no unimportant point of which is the sanitation of the Hebrew camp we have now been considering.

CHAPTER XVIII

PUBLIC FOOD SUPPLY

"He giveth meat in abundance" (Job xxxvi. 31; Gen. xli. 35).

Medical men are familiar with the effects of a scanty, inferior, or irregular supply of food on the physique, courage, mentation, and even the higher life of communities and nations, such as the Hebrews of the Wanderings. Any or all of these unhygienic factors would not have promoted, but would rather have opposed the Deity's beneficent and far-reaching plans for them and the human race. If by this means they were developed into stunted, weak, sickly, disease-stricken, and cowardly men and women; how could they march properly or meet and conquer their Desert foes, greater nations and mightier (Deut. xi. 24); the Amalakites, Moabites, the seven Canaanitish nations, &c.? If badly fed how could they be expected to be otherwise than disheartened, disobedient, and unwilling to obey Jehovah's other laws, and walk as He desired them? Or could they be expected to perpetuate the race in their physiological supremacy, inherited from their selected ancestor? Or could they be held up as models to the world, of hygienic efficiency, if disease-stricken from this cause? Wise catering for food was thus made one of Jehovah's first and supreme efforts for the benefit of the Hebrews when He emancipated and nationalized them: as it was one of their earliest needs in a region whose very name "Desert" conveyed its barren, food-lacking characteristics.

So long as the Israelites acted as God desired; and with this vital end in view, strictly followed His advice by keeping separate in spirit and conduct from surrounding heathen peoples who, as idolators, were apt to lead others to sin; they were preserved in safety, not only from the hostile attacks of their human enemies (Numb. xxiii. 9); but also from the far more subtle and deadly foe, sickness (Ex. xxiii. 25). "After the doings of the Land of Egypt wherein ye dwelt shall ye not do; and after the doings of the Land of Canaan, whither I bring you, shall ye not do: neither shall ye walk in their ordinances" (Ex. xviii. 3). Both objects, so important to the Hebrew vitality, were specially effected by Jehovah Himself, a mark of

Divine condescension, the reason of which is given, "I am the Lord your God and I will walk among you and will be your God and ye shall be my people" (Ex. xxvi. 12). The second of His all-important objects was largely effected by means of Jehovah's ordinary laws of life and health, carefully and clearly codified and strictly enforced. Attention to their dieting was one of them. In this they had to obey His wisdom. He did not permit every man in this to do "whatsoever is right in his own eyes" (Deut. xii. 8). When Jehovah legislated thus for the Hebrews in matters, strictly speaking, medico-sanitary, He did so in this, as in all other things, not for individuals only, or even families or tribes, but for the entire camp and the whole Hebrew nation. This was most apparent in such things as appertained to their more immediate necessities: and in nothing was it more clearly shewn than in the matter of food and dieting. This frequently and periodically recurring human want was provided to suit not any individual taste but that of the entire congregation. It is well to remember that Jehovah had a multiple object in view regarding the Hebrews; which explains much that happened during this momentous epoch of their still young national life. This object included:—

1st. The simple, physical preservation of this huge multitude in an infertile district, under the circumstances of number and place, was a difficult and marvellous feat. They had been led into a dry, rocky, and sandy region, uncultivated and little capable of supporting so vast a host, even with the ordinary and simplest necessaries of life. It was not a fertile, highly productive place like Goshen, they had just left; or a land of hill and dale flowing with milk and honey, and where corn, wine and oil were abundant, like Canaan before them.

2nd. He had to keep them in full health, vigour, and free from disease.

3rd. He had to educate them didactically and practically in judicious, that is wise, hygienic living.

4th. He had to inculcate strongly and mainly their utter dependence on Him not only for existence, continued life, health, happiness, and indeed all things both earthly and eternal; even for the commonest requirements of humanity. In some respects Man is alike in all ages, and lacks spiritual insight and faith on these points.

These demoralized, semi-Egyptianized Hebrews were purposely led into the Wilderness, where there was no food and little water or other necessary supplies, in order to strongly inculcate a fact which many persons, even at the present day, fail

to realize, namely, their utter dependence on Providence, that is on God, and His Divine forces, laws, and matter for even ordinary things. Do we in the mass, as an example, any more than the Hebrews of old, recognize or realize Jehovah's hand in the myriad annual miracles of spring which furnish us with so many invaluable necessities, without which we could not very long exist?

The Hebrews were familiar with the edible grains; but not so much with the animals. Jehovah accordingly gave them a list of animals selected by Him for their fitness or unfitness for food. These He termed "clean" or "unclean" ceremonially and dietically; in order in this, as in all else, to associate Him and religion with all they did and partook of; to shew them that in Him they lived, moved, and had their being (Acts xvii. 28). This fundamental law pointed out that grain and vegetable feeders among animals were, as a rule, fit for food; and carnivorous ones, as a rule, unfit and apt to spread their diseases among human beings. Moreover, the cultivation of many of the forbidden list, such as mice, rats, lizards, serpents, &c., for food would be to harbour and breed such as would over-run and infest and die in the inner parts of dwellings. Such animals would, while living, contaminate food with their parasites and diseases; and, dead, would similarly contaminate the air, and thus prove doubly dangerous to Man. Such animals abounded in Palestine, and it would have been suicidal to harbour them. To make them ceremonially "unclean" and to exclude them from food, was therefore to indirectly contribute largely to the public safety and health: while to indicate what was good for Man to eat, was directly to promote national sanitation. This list, divulged at Sinai, was no doubt mainly anticipative and meant for their life in Judea; but it would also be useful in the Desert, where they might have selected erroneously in its more limited choice.

But long ere they entered the Promised Land and its plenty a necessity arose for instant interference by Jehovah in the Hebrew commissariat. This was in the Wilderness of Sin. They had left Egypt laden with food: "their dough before it was leavened, and their kneading troughs" (Ex. xii. 35). They had "such things as they required" from the Egyptians (Ex. xii. 36); who bid them "be gone." No doubt food was one of the first they thought of. And they also took their "flocks and herds, even very much cattle" (Ex. xii. 38). But it is significantly added "they were thrust out of Egypt, and could not tarry, neither had they prepared for themselves any victual" (Ex. xii. 39). They had not prepared for a long journey or sojourn in the Wilderness. This lack of foresight was doubtless intentionally permitted: otherwise they would have been

commanded to bring a full supply. But Jehovah desired to glorify Himself, win their allegiance and love, by proving His power and affection and care. This He did by feeding them miraculously during the whole of their lengthy sojourn in the Wilderness; with two articles of food, one already known, the other altogether new. These were:—

1. Manna. "Israel did eat manna for 40 years" (Ex. xvi. 35). They had it first in Sin (Ex. xvi. 14); and it continued every week-day till they reached Gilgal, in Judea, beyond Jordan, when the manna "ceased" and they had no more (Josh. v. 12). This "manna" was not a miraculously increased supply of some already existing earthly product, such as mushrooms, which the Arabs of the present day gather: but was a special provision of "bread rained from Heaven" (Ex. xvi. 4; Ps. cv. 40), deposited like and with the dew (Numb. xi. 9), as "a small round thing" like a coriander seed, which could be ground, baked, or made into cakes" (Numb. xi. 8). It is difficult for humanity to understand or conceive how this was made. But it would be little effort for the Divine chemist, the physical and vital creator of a myriad worlds and an exhaustless variety of animal and vegetable foodstuffs, to combine the watery vapour, ozone, argon, metargon, meon, helium, and other ingredients, with the oxygen, nitrogen, and carbon of the atmospheric air, in due proportion of carbonaceous, that is heat and force producing, and of nitrogenous or muscle-making elements, and thereby elaborate this new, unique, and efficacious edible, unknown before or since, for His particular purpose. The President of the British Association for 1898 made an elaborate and far-seeing suggestion for increasing the growth of foodstuffs to meet the fast increasing population of the world. This idea was to manure or feed our fields with the nitrogen of the air fixed by alkali, obtained abundantly from the earth. Jehovah over 3,000 years ago practically forestalled our human theory of the present day by His still more astute and advanced chemistry, when He, by a marvellous synthetic operation every week-day morning for forty years, made the best and healthiest of bread from the elements supplied by the atmosphere alone, and in quantity sufficient to feed over two million souls. How easy it would be for the Divine Chemist and Creator, who has devised such an infinite variety of the most nutritious and palatable foodstuffs for humanity, and even

superadded the power of these to reproduce their like; to make for temporary and special purposes still another, composed of the ordinary elements which the atmosphere possesses in such quantity, and in the form of a round, easily manipulated, coriander seed, the results of each morning's chemistry bearing witness to the presence and care of their Divine leader and sustainer, as surely as did the pillar of cloud and fire.

2. Quails. These were an existing product of nature. But they were miraculously brought while migrating, in incredible numbers, to specially supply the Hebrews. "At even they came up" (Ex. xvi. 13) "by a wind from the Lord" (Numb. xi. 31-32; Ps. cv. 40). This flesh food the Hebrews had on two occasions in the evening at an interval of about a year; viz., in the Wilderness of Sin (Ex. xvi. 10) and at Kibroth-Hattaavah (Numb. xi. 31).

A study of the Hebrew history of that day and of the frequent murmurings and rebellions of that chronically discontented and ungrateful people, oblivious of their mercies; is both interesting and instructive, as indicating that these episodes arose not from any real fault of the dietary on the score of insufficiency or inferiority, but more of their national waywardness. That the Hebrew food and dieting were supremely healthy, when judiciously used, was shewn indirectly but clearly by the absence of scorbutic and allied ailments, diseases that usually attack armies and communities even, when dieted erroneously, either with too much vegetable or a too animal scale for far shorter periods than the 40 years of the Wanderings; and that would inevitably have ruined the nation, physically and physiologically. And it should be noticed that both the manna and quails were:—

1st. Not sent to one spot or tribe; not to the leaders, the princes of tribes, the Priests and Levites, but were spread over the camp and its vicinity (Numb. xi. 31), so as to be readily procured by all the congregation.

2nd. They were sent as required, and in abundance. The supply was never interrupted or scanty.

3rd. All the people, high and low, rich and poor, young and old, Hebrew and alien, had alike as to quantity and quality; they gathered each morning for that day; on the sixth day an extra quantity for the seventh or Sabbath day's use. The punishment for gathering more was that it putrefied and stank.

4th. The Hebrew dieting, like their water supply, was made to have an educational bearing on their higher

nature, not only as individuals, but as a nation; "to humble thee, and to prove thee, to know what was in thine heart; whether thou wouldst keep His commandments or no"; and He humbled thee and suffered thee to hunger that He might make thee know that Man doth not live by bread alone but by every word that proceedeth out of the mouth of the Lord" (Deut. viii. 3). "As a man chasteneth his son so the Lord thy God chasteneth thee" (Deut. viii. 5). They were made to undergo hunger and thirst for beneficial and educational purposes. It was high honour for Jehovah thus to interest Himself in their behalf (Deut. iv. 32-33). "Ask now of the days that are past since the day that God created man; and from one side of Heaven unto the other where there hath been any such thing as this great thing is or hath been heard like it."

But what was the practical outcome of Jehovah's attention to the Hebrews and their dietary? During the Forty Years Wanderings the Hebrews collectively murmured both frequently and grievously. The third of these occurred in the Wilderness of Sin, and was originated by hunger, when they had consumed the Egyptian supply, and had not yet learnt to fully trust their Divine leader for the future, but only remembered the past and the "Land of Egypt, where they sat by the flesh pots and did eat bread to the full" (Ex. xvi. 3). This occasioned their first introduction to (Ex. xvi. 13) *quails* in the evening and next morning to *manna*, the specially made "bread from Heaven" (Ex. xvi. 4). The fifth murmuring of the Hebrew host at Kibroth (Numb. xi. 34) was for animal food, when the cry was "who shall give us flesh to eat. We remember the flesh we did eat in Egypt freely, the cucumbers, the melons, and the leeks and the onions, and the garlick; but now our soul is dried away: there is nothing at all beside this manna before our eyes" (Numb. xi. 4). A west wind went forth from the Lord and brought quails by the camp, a day's journey round about the camp and thus within easy reach (Numb. xi. 31). These they gathered and ate to satisfy until punished for lusting and murmuring, with a very great plague (Numb. xi. 34), which no doubt carried off many discontents, possibly mainly the rebels of Kadesh; and taught them the sanitary lesson that moderation in diet, as in all else, is the wisest rule of life. For the third time the Hebrews murmured on account of their food. This was later on in the Wanderings between Mount Hor and Ezion-geber, when they had become "discouraged" or grieved at the primitive prolongation of their stay in the Desert. On this occasion their plaint was "there is

no bread, neither is there any water, for our soul loatheth this light bread" (Numb. xxi. 15). For this they were punished with the plague of fiery serpents; and the brazen serpent faith cure and preventive was called to their aid (Numb. xxi. 9) and tuition.

In addition to manna and quails the Hebrews would occasionally have flesh food from their sacrifices, as well as fish caught in the Red Sea; succulent vegetables grown where they camped longest, as at Kadesh and while compassing Mount Seir, where they doubtless dwelt many years. Their entire diet-system was practically wise and well ordered, and sanitary, as it preserved them from sickness such as scorbutus and scorbutic ailments, the common sequelæ of an erroneous dietary. And, with the exceptions already given, they evidently relished it; manna being its staple part. The Hebrews were thus well catered for in the Desert. Their chief basis of supply were the clouds and the air; their caterer Jehovah. An imperfect food supply, food of inferior quality, are certain not only to cause public discomfort and discontent, but also debility and disease, shortened lives and death; results which have ruined many an army and community, and that militate materially against national vigour and progress; as they would to the Hebrews had they been permitted.

As in former times and the days of Abram, Isaac, and Jacob; Jehovah's care of the Hebrews extended to all that concerned them, all they possessed, and to their domestic animals, their flocks and herds. This was doubtless meant more to promote Hebrew health than wealth. The fecundity and rapid increase of these (Ex. xxiii. 26; Deut. vii. 13), even under the many unhygienic environments of the Desert, proved their healthiness. This salubrity again implied healthy flesh, and, above all, good milk. And these again would contribute very largely to the salubrity of the people to whom these, especially the latter, were integral parts of their dietary. They provided healthy pabulum for tissue renewal; and disease-free flesh to save them from animal originated ailments. The Hebrews did not require to boil their milk, as it contained no tubercle bacilli. Can we doubt that this contributed largely, nay mainly, to their freedom both then and now from tuberculosis in its many different and deadly forms. A primary careful selection of animals, bleeding of their carcases, and attention to milk purity, are potent factors towards preventing in the human frame that condition now alluded to, which annually slays from one-seventh to one-tenth of our population, even in sanitarily enlightened countries. Moreover a careful Divine supervision of the Hebrew domestic animals would do much to keep that nation free from many other diseases, especially in-

fectious and contagious ones, communicable from the lower animals to man. The inculcation on the Hebrews of the many factors necessary for human hygiene, such as proper dieting, water supply, cleanliness, rest, &c., &c., would doubtless re-act by their increasing their hygienic attention to these domestic animals as well as to themselves.

Thus were the Hebrews in the Wilderness fed and cared for as no other nation ever was before, has since been, or ever will again be. This was part of Jehovah's scheme, to cause events unparalleled in the history of the human race, to inculcate their constant human dependence on Him for all things, to endeavour to develop corresponding gratitude, love and fear; as a secondary object, their education in hygiene, both practical and theoretic, as exemplified on and by themselves as a nation. Where is the human being in any age or country that could have catered for the singular Hebrew host as Jehovah did under the peculiar circumstances: or could have legislated better hygienically for the public welfare in dieting as He did for the Hebrews in the infertile Sinaitic Deserts?

Jehovah's attention to the Hebrew dietary was only one, though an important factor in a series of means all tending to promote one great and ulterior object: the education of the Hebrews in general well-doing after His Divine standard. During their 40 years' Wanderings the Hebrews not only were well fed but "lacked nothing" (Deut. ii. 7). In their ultimate destination, the highly fertile Canaan, they had food in abundance and variety; a circumstance well fitted to make them individually and nationally, contented, healthy, long-lived, happy, prosperous; and to develop them into a physically model people; a factor of no small importance towards their so much desired higher development in other directions, social, intellectual, moral, and spiritual.

CHAPTER XIX

PUBLIC WATER SUPPLY

"Shall give the congregation drink" (Numb. xx. viii; Ez. xvii. 1; xix. 14; Hab. ii. 15; Rom. xii. 20).

A copious supply of good water for drinking, cooking, and cleanliness, so necessary for individual health and comfort, is even a greater and more instant necessity than abundance of food for communities and nations like the Hebrews in the Desert; who, moreover, had been accustomed to water without stint from the Nile. They knew nothing of the discomfort, distress, nay disease, and even a worse eventuality apt to follow a deficient supply or bad water. The need of providing it in a parched desert made the problem far more difficult. But it also emphasized the wonderful manner in which the necessity was met. That a constantly deficient supply would have led to permanent murmuring and rebellion, is shewn by the history of the Wanderings and the effect of an occasional lack, as at Massah (Ex. xvii. 7; Deut. xxxiii. 8) and Meribah (Deut. vi. 16; Ex. xvii. 7; Numb. xx. 13; Deut. xxxii. 51; xxxiii. 8). Lack of water is far worse to bear than lack of food; and sooner kills the spirits, health, and even life. Castaways in deserts like Sinai or at sea are much more likely to die and to succumb sooner to thirst than hunger. Constant or frequent discontent from this cause was a frame of mind that would not have conduced to a satisfactory reception of and obedience to Jehovah's many other laws of even greater importance than the hygienic. Physically and physiologically, a supply of impure fluid would have been dangerous, as it would most likely have led to widespread and decimating diseases, such as have often happened in bygone times, both to communities and armies. It is therefore both interesting and instructive to know how our Divine hygienic teacher, Jehovah, met the emergency; and how He conquered the difficulty in a manner which no human being could have accomplished: a marvellous feat, as He had to provide for the instant and constant necessities of over two millions of souls and their vast flocks and herds, that would consume even more water than their owners.

As with lack of food, so scarcity and lack of water was made God's instructive opportunity, no doubt purposely brought about (Ps. lxxxi. 7) to try them, prove, and teach them their dependence on Him for everything, even for such a common necessity as water. This was a very important part of their education, as it is of ours. In Egypt, where they had it in abundance, they possibly did not value what was so plentiful and easily procured. Moreover, for this mighty host, a large supply was constantly required. The one well, ample for the smaller followings of Jacob, Isaac, and Abraham, was not enough for these; as they required it for:—

1st. Drinking purposes, in a warm and thirst-producing climate.

2nd. For cleanliness of the body, clothing, even although, like the Arabs, they did not indulge in this overmuch. Was this negligence and deeply ingrained carelessness regarding cleanliness one reason why cleanly habits and frequent ablutions were so frequently inculcated and made part of the Hebrew ritual?

3rd. For cooking and general culinary purposes.

4th. For the washings, sprinklings, and ablutions that formed so large and unavoidable a part of the Hebrew ritual and the much ramified and intricate law of cleanliness that must have required a considerable daily supply of water, as it involved cleansing, not only of their hands, but of the feet, body, and clothing, &c., more or less according to circumstances, and the requirement of their strict, God-appointed law of cleanliness.

5th. A constant and oft-renewed supply of water would be required for the laver, in which the High Priest and Priests washed their hands and feet after sacrifice &c.

6th. Their flocks and herds, large even when they left Egypt, and very much larger towards the end of the Wanderings would require water in great abundance. During their long stay of 40 years the Hebrews would find the wady streams larger in winter than in summer, even as now. The Arabian peninsula of that day was doubtless better watered, because more wooded and fertile, than at present. And no doubt the route and different camping grounds were selected by Jehovah with some relation to their water supply. In some parts of the Desert brackish water is found not far from the surface, but this would be of doubtful quality and insufficient for a host like this. Even a single well, such as sufficed for Jacob's 70 souls would not be

enough. It would take the twelve wells of Elim to water them sufficiently. The plentiful rock supply at Kadesh (Ex. xx. 10) would be one great inducement to remain there "many days." But, as a rule, water, naturally supplied, was very scarce in the Arabian Deserts. And but for Jehovah's miraculous intervention the Hebrew host, such as it was, would probably have been annihilated by lack of water and the diseases and conditions induced by this serious deprivation. After crossing the Red Sea the Hebrews were led three days' journey into the Wilderness of Sin. Here they found no water, and first experienced the many discomforts of its deprivation. Led back to Marah they found water; but it was bitter. Their inability to use this occasioned the second of their many public murmurings against Moses. Jehovah shewed him a tree (ghurkud?) by which this defect was remedied and the water made palatable. At Elim's twelve wells water was plentiful. But they did not linger long there, as they were being hurried on to Sinai, to be systematically organized and converted from a practical mob into a law-regulated nation, after Jehovah's methods and His laws. At the base of Horeb, and probably in the Wady Gerundel, they camped in a valley surrounded by a sloping amphitheatre. This was in April or May. Here they remained nearly a year, an ever memorable one in their history and that of the human race, and thus spent a summer, autumn, winter, and spring in the heart of this, the mountainous part of the Sinaitic peninsula, surrounded by Sinai, Horeb, and other peaks of that mountain group that towered over 8,000 feet into the air, to attract the clouds, rain and dews necessary to form rivulets, streams and mountain torrents, to water the wadys and the Hebrew host below. Here the mountain deposits of water, possibly miraculously increased to adapt them to special requirements, doubtless gave them an abundant water-supply, as we read of no complaint on that score during the year, and not until three days after leaving Sinai; and led by the clouds and fiery pillar to camp further north at Rephidim, on the other side of Sinai, where there was no water, no wady streams or wells like Elim; doubtless as part of their education, and once more to guage their faith. Here occurred the fourth public murmuring, the occasion being "they thirsted for water" (Ex. xvii. 31). Jehovah, through Moses, had to shew

them more clearly than ever who was their provider, and fetched it out of a rock struck by their leader. This rock water was evidently good and pure, not bitter as at Marah or muddy and fever-laden as from the desert sand. It suited their palate and caused no disease. Jehovah's object in adding this to the many other remarkable miracles that purposely inaugurated the origin and rise of the young Hebrew nation is given thus "to prove them that His fear might be before their faces and they sin not (Ex. xx. 20). It was meant to once more make them feel their dependence on Jehovah for all things, even for such a common necessary as water; a blessing often and widely undervalued because so plentiful; and yet so craved for and so prized when lacked: thus to make them grateful, obedient, and faithful to Him. Underlying this, moreover, lay another but most important object, that of keeping them healthy and happy in terms of His promise to "bless their bread and water and to take away sickness from their midst" (Ex. xxiii. 25), if they continued to serve Him loyally.

From Rephidim they went on by frequent marches to Kadesh Barnea, in the Wilderness of Sin, near the southern border of their destination, Canaan. Here the sixth murmuring for "lack of water" occurred (Numb. xx. 2), and because "it was an evil place and not like Egypt; it is no place of seed or of figs or of vines or of pomegranates" (Ex. xx.5) Here again, for the second time, God gave them water abundantly from the Desert rock (Ex. xx. 10), struck by Moses. This fount no doubt continued during their lengthy stay there of "many days" (years) and possibly largely contributed to it. Later and further on towards Ezion-Geber, and in the wider wadys to the west and east of Mount Seir, which they rounded in their new and lengthy route to Judea, and where, as at Kadesh, they stayed many days (years?), they doubtless found sufficient water in the streams of these long Wady Arabah and in the region named Nebaioth, as they evidently did further north towards Nebo. The Hebrew lesson was over, and they were now, while being otherwise instructed, led where water was naturally as plentiful as they required.

The water supply of the Hebrews under the trying ordeal and unhygienic environment of the Desert was thus good: and God-provided by special means. Never before or since has any people witnessed three such miracles as did the Hebrews at Marah, Massah, and Meribah, in connection with their water supply. The result was, the absence from the camp of water-

created diseases from morbific impurities; such as periodic or malarial fevers, diarrhœa, dysentery, typhoid, cholera, &c. In Judea their water supply was abundant and doubtless even purer and healthier than that of Goshen; although it should be noticed that we never hear, then or now, of malarial or allied troubles in the Nile Delta, such as prevail in many other similar alluvial formed plains. Goshen was evidently as healthy in Mosaic days as it was fertile; and a well-chosen locality and climate for the early development of a nation.

CHAPTER XX

PUBLIC AIR SUPPLY AND CLIMATE

"They have all one breath" (Eccles. iii. 19; Acts xvii. 25; Lam. iv. 20; Ez. xxxvii. 9).

Jehovah's care of the Israelites as a public body and nation was shewn as much by His selection of a climate as in anything else; this hygienic factor being, like others already spoken of, a matter of vital sanitary importance. In Egypt, which they had just left and where they were developed as a people; and in Judea where they finally located as a full-grown nation; as well as in the intermediate Desert where they were in a measure educated, the atmospheres and climates were all highly favourable to human health, life, and longevity. Air is practically a variety of food, as it is a necessity of life, being absorbed into and assimilated by the lungs and blood, as are the more substantial food and drink by the stomach. It is by these three, namely, air, drink, and food, that the physical frame is built up and sustained. In the former case by the lungs, the absorption and assimilation of air are constantly going on; in the latter to this vital chemistry is more intermittent. We are continually taking in air and oxygen, for good or for evil; either pure to aid us to live and be strong, or impure to act against our strength, vitality, health, and life. The amount of oxygen thus incorporated with the body is very large. Hence the greater import of perfectly pure air to a community like the Hebrews; a young and rising nation destined for great ends, and meant to play a very prominent part in the history of the world and the human race: especially as prolonged impure air is one of the most potent and frequent factors in the genesis of disease and weak health. As they were doomed to "wander" between Egypt and Judea for the, humanly speaking, long space of forty years, it would not have promoted Jehovah's scheme for their physical, social, and political existence, or their moral and even spiritual progress to have doomed them to such a prolonged residence in a region where, in addition to other unhygienic factors, they had still another, namely, unhealthy air, to contend against and weaken them in body and mind, and prove unsuited for the promotion for their vigour, health,

and longevity. In this matter, also, one of health, happiness, and prosperity, or the reverse, the Supreme Hygienic Councillor had to legislate for the Hebrew interests, present and prospective; and rightly lead and cater for the whole multitude and incipient nation where, while being educated, mentally, morally, and socially, they would not deteriorate in body. He therefore took them into the Arabian Deserts, where the climate was even more healthy than those of Egypt or Judea: inasmuch as it was dry, warm, pure, clean, not re-breathed, and uncontaminated by noxious gases, dust, and other detrimental additions from smoke and human exhalations, except those they themselves made. The air of deserts, oceans, and mountain tops is the healthiest and purest. The Divine Hygeist therefore led the Hebrews, with His usual forethought, where they would have the purest and least contaminated air possible.

Although climate, air, and ventilation are not directly spoken of in the Holy Scriptures or legislated for divinely in the Pentateuch or elsewhere, still a great deal is indirectly and inferentially implied, and therefore inculcated, regarding these; and the sanitary lessons to be drawn therefrom are of great importance. Although the purity or impurity of the air breathed by the Hebrews is never even alluded to, the importance of the former as a health-preserving agent, and of the latter as a disease-inducing factor, are indirectly and inferentially implied by the great importance attached in the Mosaic hygiene and camp life to that which is one of the most frequent and potent agents in influencing air contamination, namely, *public* cleanliness; for example, of the tents, household utensils, human bodies, clothing, Tabernacle, and the camp generally. From the equator to the poles, and all over the globe, the general atmosphere is not only very pure, but also to a large extent self-purifying; and therefore in its natural condition well adapted for the lungs of the human race generally. It is mainly what is added to this, impurities added to purity, as from the earth's surface and mainly from Man himself and his works that is noxious; for example, that which comes from the soil itself, such as malaria, &c.; and that which emanates from human beings themselves, their bodies, clothing, dwellings, and communities. As a rule it is those impurities last mentioned which are most objectionable and dangerous.

The air and climate of Goshen were evidently as healthy as the land was fertile. This materially aided the rapid Hebrew increase. Moreover, at the Exodus there was not one feeble person among them, *i.e.*, not one that had to be left behind because ill a-bed, ailing, or so weak from age or debility as to be unable to undertake the fatiguing journey. In the still purer and healthier atmosphere of the Desert they enjoyed

at least equal if not greater health. They had diseases but only such as was brought on by their own folly and discontent, *e.g.*, leprosy (Lev. xiii. 44); plague (Numb. xi. 33; xvi. 46); fiery serpents (Deut. viii. 15), &c. But we hear of no ailments induced or promoted by impure air, such as consumption. And at the end of the Wanderings, although all who had left Egypt had died in various ways; no doubt the fine air of the Desert helped largely to promote the health of the rising generation, who finally occupied Judea: so that for "forty years their feet swelled not," as it is figuratively expressed by Jehovah (Deut. viii. 4; Neh. ix. 21); while their former racial fertility continued as in Egypt, and there was not a male or female barren among them (Ex. xxiii. 26; Deut. vii. 14). Of what other nation or tribe can this be said? Doubtless it was due to Divine supervision, acting mainly through His own appointed health agencies or carefully devised and regulated hygiene, of which carefully selected camping ground and sanitation, resulting in pure air for respiration, was not one of the least important of these forces and laws appointed to accomplish certain ends. It was clearly not due to the Hebrew knowledge of sanitary matters, for they were merely pupils. But Jehovah knew what neither the Hebrews nor the nations of far later ages could realize or find out, namely, how fertile of debility and diseased conditions and even death is the contaminated air near and around aggregated human beings; and how impure the atmosphere is made by humanity itself. He accordingly took judicious precautions, and wisely combined His hygienic forces and laws; blending the higher hygiene of the soul with the lower of the body, in order to keep both in the greatest health. For convenience and dignity the Tabernacle was placed by Jehovah in the very centre of the camp; that is where the air is most re-breathed by the people, and thus most unhygienic. He also made this their sacrificial spot and therefore the place most apt to become impure and its atmosphere by sacrificial causes and assemblies of persons and animals. How He legislated so as to keep the air of that special spot and the entire camp pure, by excessive cleanliness, disinfection, ventilation, and general preventive measures will be seen from a perusal of Chap. 20 on the Hygiene of the Camp, and Chap. 19 on the Hygiene of the Tabernacle. By these measures He lessened and prevented the inception of microbic disease and others arising from impure air. In this manner both the Priests, Levites, and the public; and not the Tabernacle and its vicinity only, but the entire camp, were sanitarily benefited; and their frequent acts of sacrifice and worship made to promote the health of the whole man, soul and body; and not those of the worshippers only, but of the entire camp and congregation.

The air we breathe is public property; and it is required urgently by all. When good or bad it does not benefit or injure one but all; every individual, tribe and family in the community. When Jehovah took the Hebrews into the clear, dry, warm and uncontaminated air of the Arabian peninsula He put them under one of the chief, and that a constant factor of healthy life and vitality, pure air. When He massed them in tents, open and well ventilated, He accentuated this hygienic benefit. He did this still more by causing them to move their camp frequently to a new and clean spot; an incident which oftenest occurred when it was most required, and thus of special import, namely, in the earlier days and second stage of the Wanderings, as between Sinai and Kadesh, for then they were not sufficiently drilled into the mysteries, and knew nothing of the benefits of a scrupulously followed system of public hygiene. Nor had they yet fully learnt that massing in a camp does two unsanitary things: and, *first*, removes vital oxygen, and thus lessens its proportionate supply to all: and, *second*, it adds impure gases, vapours, dust, &c., to the air; matters which are more or less deleterious, poisonous, and morbific to those who breathe it. The Hebrews had not the comprehensive sanitary grasp to see that matters such as this which influenced individuals, affected the whole congregation and was one of public import and of national bearing.

The Hebrew hygienic danger in the Desert was not in its pure, dry, balmy, malaria-free air, unpoisoned by swamps, nor in the contamination of this by other people; but in its faulty morbific admixture by themselves; and the massing together of over two million of souls and "very much cattle." These indeed were the only sources by or from which the healthy desert air could be made morbific to the community. Hence why the Deity, the special hygeist of the sanitarily ignorant Hebrews, made special and strict laws to lessen or prevent these dangerous impurities, contaminating conditions and causes, with the ulterior view of promoting physical cleanliness and thus physical and chemical purity and salubrity of the air; not of the Tabernacle only or of the central Priestly and Levitical circle, but of the larger, more populous outer circle and entire camp. These laws included briefly the immediate removal of all matters, animal and vegetable, likely to putrefy or make the camp unclean, especially sacrificial debris, food, animals, &c. Another important one was that which prevented camp pollution more than anything else (Deut. xxiii. 13). The pollution of the camp and necessarily of the air overhead was thus lessened or prevented by two of the most frequent sources of contamination. While its additional fouling by unavoidable individual emanations from the lungs, skin, &c., was reduced to

a minimum by the arrangement of the camp on the sanitary principles best adapted to ensure good ventilation. This, one of the most potent of all sanitary agents, namely, pure air, was thus actually supplied to the Hebrews so long and only so long as they obeyed Jehovah's hygienic laws strictly. And this they were compelled to do by Moses and his hygienic assistants; who knew the import of the matter and the importance of the issues involved. Jehovah thus in another sanitary matter, that of air purity, legislates for the public benefit and for national hygiene. Here again, also, as with the Hebrew food, water supply, and indeed all else, perfect cleanliness was aimed at: cleanliness being again pointed out in this hygienic branch of the Mosaic law as the basis and watchword of all modern as it was of the Mosaic hygiene.

Does not the Pentateuch therefore once more forestal modern hygiene in this matter of cleanliness and clear air; and give sanitary scientists a fundamental hint that we have been very slow to learn? Excessive cleanliness is thus once again shewn by the Mosaic laws of air hygiene to be a most important sanitary agent in all circumstances and in every phase of life and living; but less perhaps in the hygiene of the pure air of the Desert, and their open tent life; than subsequently in Canaan; where, being massed more in towns, villages, and cities, and in close houses, was so apt to add in many ways, especially if conjoined to defective ventilation and careless general sanitation, to aerial impurity. Clearly therefore it will be evident that:—

1st. The idea that impure air is a potent and frequent insanitary agent is not a modern one; but was indirectly pointed out by the enactments of the Mosaic code: and

2nd. The chief sources by which air is contaminated and made unsafe and disease-inducing are pointed out indirectly by the Mosaic hygiene, and include the following matters of public sanitation:—

a The non-deposit of refuse, animal, vegetable and mineral, especially that which is most likely to putrefy and cause impurity, directly or indirectly, in physical or chemical, living or inert forms, as gases, vapours, or microbes, all of them apt to deteriorate health and beget disease or even cause death.

b The instant or earliest possible removal of all the refuse that had to be temporarily deposited in the Tabernacle or camp.

c The complete destruction by fire, and thus the thorough dissipation of all that is peculiarly apt to decompose soon and greatly in the sacrifices, and the refuse thereof.

d The closest attention to personal cleanliness, and frequent washings and ablutions among the people, Levites, and Priests. And this not only amongst the healthy, but especially among the ailing and the diseased; conditions particularly apt to contaminate the air with morbific matters: and the consequent prevention of one great and constant source of air contamination; namely, by human excretions and secretions, such as perspiration, &c.; all more or less vitiated and disease-laden when the person from whom they come is so.

e The care taken by the Mosaic ritual to spread different potent and Divinely selected disinfectants, deodorants, and bactericides, by the Holy Incense and Anointing Oil used in the Tabernacle service; that widely disseminated odours which the Priests, people, and Levites frequently breathed and carried far and near, absorbed in their clothing, to act as microbe exterminators and disease preventers.

f The highly sanitary and methodical arrangement of the Hebrew camp, one calculated and made purposely on the best of sanitary principles, to promote free ventilation of the tents and intervening alleys and streets: in other words to increase the purity of the general atmosphere of the community.

Without these precautions, all of the highest sanitary value, the different foreign ingredients apt to be added to the pure air of the Desert, and thereby render it noxious, health-impairing, or even actively disease inducing, by affixing themselves to or getting into the human body by the skin, lungs, or stomach, &c., are:—

1. Gaseous emanations, more or less volatile; odorous or non-odoriferous; and usually morbifically injurious by long-continued inhalation or absorption and concentration.

2. Vapours of greater or less density; odoriferous or not;

and usually inimical to the human body and its blood and tissues, by long continued inhalation or imbibition or absorption, till at last disease is induced.

3. Fine or microscopic particles of clothing and other debris; or latent resting bacteric germs, spores, or active morbific microbes: all of which are apt to induce disease; the former mechanically, and the latter by fissural germination in the blood or the tissues of the human body.

Clearly, to have exposed the Hebrews of the Wanderings, especially for so long a period as forty years, to more or less impure air would have been equivalent to lessening and even wholly counteracting the beneficial influence of the many other vitally important sanitary agencies which they enjoyed, such as healthy food, pure water, rest, ease, exercise, &c., &c.; and to have thereby invited the attention and inroads of many forms of disease, both from purely atmospheric sources and otherwise. But this Jehovah, the far seeing and Supreme Wisdom, did not do. He led them into the purest hygienic environment; and hedged this in and prevented it from becoming too faulty, that is morbifically impure by every possible means; non-contamination, constant renewal, and disinfection.

The Jehovistic hygienic teaching and methods regarding purity of the air which the early Hebrews breathed with a view to keep them healthy, free from disease, long lived and vigorous; and to aid other hygienic agencies to do the same; as recorded in the Pentateuch and the story of the Wanderings, are thus, although mainly indirect and implied, of extreme importance; and not only forcible but anticipative and worth study by modern sanitarians, as containing the fundamental principles of all wise hygiene of the air and the rudiments of air therapeutics.

CHAPTER XXI

PUBLIC EXERCISE

"As workers together with Him" (2 Cor. vi. 1; Ez. v. 13; 1 Cor. iv. 12; Mat. x. 10).

The Holy Scriptures throughout, and especially the early history of the Hebrews, have for over 3,000 years been directly and indirectly pointing out what profane history, ancient and modern, as well as Nineteenth Century hygiene, have fully endorsed; namely, that a certain amount of work or exercise, duly apportioned to their antithesis, rest, is as urgent a sanitary necessity and hygienic factor for nations, as it is for individuals; and essential for the public health, happiness, prosperity, longevity, and continuation. The two opposite extremes are equally detrimental. National indolence becomes a vice and is erroneous from every point of view. On the other hand overwork, whether voluntary or enforced, as during the Egyptian bondage, is equally harmful, especially as this is sure to include neglect of Nature's, that is the Divine, laws of hygiene that demand stated nightly and weekly rest for the whole being, body and soul, mind and heart. The increase and health of the Hebrews during slavery and in spite of crushing work and cruelty is no argument against this; because they were specially blessed by Heaven for definite purposes (Gen. xvii.; Exod. i.). Unceasing activity is and always has been a feature and untiring work a prominent factor in the development, progress, and success of the leading nations and races of the world, past and present. As with individuals, inert nations are or become inferior. Laziness and idleness are not only biologically, but also socially, commercially, politically, morally, spiritually, and commercially unwise; but also unsanitary, enervating, and detrimental alike to body, brain, and soul. Considering their infallible source the Scriptural teachings and hints, both direct and indirect, regarding work, labour, exercise, recreation, and other forms and degrees of activity, necessary and wise for humanity, aggregated into nations and communities, are therefore worth deep study, and if possible close imitation.

God inculcates and Hebrew Bible history specially demon-

strates for educational purposes, Hebraic and racial, that work is indispensably necessary for human health, happiness, longevity, earthly prosperity, and even the permanence of peoples; and also that it is equally necessary that people should be instructed to labour in a certain special mode; that is systematically and collectively, with precise aims for definite purposes. The life of the majority of the Hebrews when in Egypt had for long been a hard one. From before the birth of Moses on to the Exodus, the Egyptian taskmasters had kept their Hebrew slaves busy and overworked both in body and brain. After the Exodus their Desert life was no doubt a welcome change; bringing with it comparative mental and bodily ease. But inactivity of body and mind are as detrimental to nations as they are to individuals; and it would have been to the national detriment of this important race had they led a wholly inert and lazy life in the Desert. This we accordingly find they did not do; led and guided as they were by Jehovah, the infallible hygeist; who was studying their universal welfare. Nothing is said, either directly or indirectly, in the Pentateuch regarding physical exercise either as a health-preserving or as a disease-preventing sanitary measure for the masses; except in the fourth commandment, where the avoidance of work is ordained every seventh day. But it must be remembered that this detail was unnecessary under the circumstances. And it is also well to keep in mind certain facts connected with the Hebrew daily life, both personal and communal, in the Desert, where care was taken to give them enough work for health, but not too much to induce disease. These facts are:—

1st. The Hebrews were located in a semi-tropical and warm climate, where people neither required nor indulged in much work or even in voluntary recreation; but lead a more easy, semi-luxurious, indolent, and inactive life than we in colder latitudes.

2nd. They lived in a widespread open camp, in well-aired tents; and so did not require to take long country walks and drives, which the impure air of our denser communities usually necessitate. Nor did they need active exercise to evolve body caloric; as do the inhabitants of colder latitudes, like ours.

3rd. Their ordinary social domestic camp ceremonial and pastoral occupations when the camp was stationary gave them all sufficient work for health requirements; it being understood that no one ought to take more than enough for this purpose. No one needed to do this now that their Egyptian tyranny was ended. But the public work of the Hebrew camp and congregation was all portioned out by rigorous and inflexible law;

the commandments of Jehovah. As each atom and object in Nature, and especially each of His living creatures, has its definite place and rôle; so every Israelite had now, in addition to his and her own special individual work, certain duties which were more especially public and national; each person being taught and manipulated as part of a corporate body.

The work of their earthly leader, Moses, was largely mental; the hardest of all labour. As their chief and as God's agent and mouthpiece, he had enough to occupy his time fully during the first year of his leadership; in marshalling and guiding his unruly host of men, women, and children. Later on, at Sinai the reception of the law; construction and erection of the Tabernacle; induction of the new order of camp arrangement, would fully occupy his time. So would the frequent camp drill and frequent movements of the next year and the march to Kadesh, where fresh work and worry awaited him; as indeed they did during his entire leadership. Added to all this he had his onerous duties as arbiter and judge until the election of the rulers of thousands, hundreds, fifties, and tens (Ex. xviii. 21) by Jethro's advice at Rephidim, before Sinai, and later on at Taberah, 70 Elders to help him (Numb. xi. 16). These Hebrews, turbulent, hard to please, discontented, ungrateful, and so often deeply rebellious that their greatest benefactor, Jehovah, twice threatened to exterminate them (Ex. xxxii. 10; Numb. xiv. 12), no doubt gave Moses plenty of work as well as worry to settle their personal, family, and tribal disputes. Later on, when relieved of his judicial work, his important literary task, the Pentateuch, a record for future generations, that had to be so carefully executed (Deut. xvii. 18; Rev. xxii. 19; Deut. xxxi. 26; Exod. xvii. 14), as it was Divine, and so had to be veracious and unexaggerated; would engross much of his time, as it was carried out in an environment and under difficulties to which the modern author is a stranger.

Aaron had his departmental duties of no light order, and under him the Priests; to regulate the Tabernacle services and the sacrifices; to direct, explain, and adjudicate these, as the public appeared to seek their advice or come perforce to obey. The Priestly and Levitical sacrificial work in slaying and burning so many animals and keeping the Tabernacle clean would be very heavy. So would the Priestly medical work in examining the ailing or suspected lepers; and acting as occasion demanded.

The laity had their work. While the women had their tent and home labours, the men had their flocks and herds to tend.

Each tribe had some, probably most families. Some had more than others. Considerable at first, and over two millions, they were increasing prodigiously, and at last no doubt spread far and wide beyond the human camp; requiring much care and labour to keep them apart, clean, watered, and fed, and within bounds. Above all things these early Hebrews were shepherds. At Kadesh where they stayed many days (years? Deut. i. 46) and at Mount Seir (Deut. ii. 1) they probably had gardens to occupy their leisure in providing vegetable food and give them pleasant and healthy work. Handicrafts of many kinds would also be carried on as in other communities to employ many skilled hands; like those developed by the construction of the Tabernacle; including sheep-shearing, weaving, carpentering, tailoring, and many other pursuits. So that the entire community would be kept busy and at genial healthy labour for themselves and under pleasant environments. When camped one and all were kept sufficiently busy, but not overworked: and when the congregation was contented the community must have been a scene of bustling activity after the usual Eastern, that is leisurely, fashion. Not an idle, lazy aggregation, but each at his own occupation, and all working together at different things for the common good.

4th. When the camp moved and the Israelites were on the march each individual family, tribe, and sub-section had their special allotted part to perform. Jehovah had shewn them at Sinai how to arrange themselves systematically, how to camp and on the march how to walk, in definite order of precedence according to tribes. He now shewed them practically not only that work was good and indeed necessary for the corporeal and mental health as a people, but also explained how their labour was to be carried out, and how it was best done; namely in a similar systematic mode: each tribe or family having its own special allotted task, for the full and proper performance of which it alone was responsible, and its dereliction punitive. Moses had brought forth the tribes from Egypt by their armies (Numb. xxxiii. 1), and harnessed (Ex. xiii. 18), that is not as a disorganized mob, that is one in which each person, family and tribe marched how and where he liked; but systematically arranged, possibly by Moses. Now Jehovah carried out His entirely new plan or the renovated system of Moses; a mode in which during the march, as in the fixed camp, the Tabernacle and God, symbolized by the cloudy and fiery pillar, were the central figures round which the whole people rallied, as their

leader, defender, and provided. Jehovah's minute arrangement gave the order in which each tribe was to take precedence on the march and do the work, how to arrange themselves and labour on re-camping, and the special part each had to perform on again settling (see Camp) round the Tabernacle and thrice-sacred ark, a treasure of infinite value to the Hebrews, as it was an index of their superintendence by God and of their safety. Jehovah, and not Moses, was the author of this systematic arrangement of the tribes on the march and when stationary, and of the part each had to play in it to ensure transport and security. It was God who ordered the sons of Aaron to carry the sacred things; the Kohathites, Gershonites, and Merarites to carry each their own part of the invaluable Tabernacle. The adult males and women had their belongings, no doubt considerable, to transport; the fighting men their weapons of war. So that each individual and every tribe and subsection had enough work to do when taking down or reconstructing the camp or transporting it; especially as, like the soldiers of an army, each had to do his own task, keep his proper place in the ranks and march neither quicker nor slower than the rest of the congregation, the Tabernacle, which was carried in their midst, or their leaders and the cloud of darkness or pillar of flame which preceded them. They were marching through a desert or series of deserts; but there were foes all round that, incited by innate combativeness, jealousy, or cupidity, might at any moment attack them, as did the Amalekites, Moabites, Og of Bashan, and others; so that though the fact is not expressly mentioned it is likely that their fighting men, six hundred thousand strong, would be properly drilled as militia soldiers by the princes and captains of the different tribes, acting under the ex-general Moses, for the defence of the ark, tabernacle, camp and all that was so dear to them. What exercise could be better for adults than this well-considered martial drill? Even the hangers on, strangers and slaves, the hewers of wood and drawers of water (Deut. xxix. 11) attached to the camp had their special work and exercise. So that no one in the entire Hebrew camp could be indolent.

5th. The food and drink of the Israelites were miraculously provided; so that they had not the need to "toil" for them to the extent that most human beings now have, as a legacy of the Edenic curse, until they arrived in

Canaan; but still they had to fetch water, gather and cook their food, to help, keep them in daily employment. Nor had they to toil as we have for clothing, beyond caring for the flocks which mainly provided it. Still they had to weave the wool and make the clothes. Nor had they to search for health and strength as we often have. Jehovah gave both, and kept their camp by the wisest and unflinching of sanitary laws, free from those unhealthy agencies that so often make our town and city, and even village life, so sickly.

6th. In this connection it must be remembered that the Hebrews were not meant to be a great, conquering military nation; a nation of athletes and soldiers. Their conquest was meant to be educational and exemplary. Their training for this was accordingly far less physical than social, moral, mental, and spiritual. As a body they were being educated up from a very low to a much higher level than that of cotemporary nations; by the laws which their Divine leader had bequeathed on and in the shadow of Mount Sinai. In their early days and desert life their pursuits and environment were far more tuitional than later on when they were settled and scattered over Judea. So that much of their spare time, when in a healthy frame of mind, was doubtless spent in listening to discussing and learning the different codes and sub-codes of the many-sided "law" altogether new to them and strange; which Moses rehearsed, read, and spoke about after its receipt from Sinai and the Holy of Holies.

In their Desert days the Hebrews thus had as much work as was judicious for them; all of it apportioned by Jehovah, the best and wisest of sanitarians: who knew the nation, its past, present, and its future; as well as what He desired to accomplish by and for them as no one else could know. In perusing this early Bible history we are perhaps apt to place their frequent murmurings and rebellions side by side in contrast with their comparatively easy and placid camp life, so different from the life they led in Goshen; and deem the discontent largely due to a deficiency of work and a condition of semi-idleness. But they were apparently fairly content during the engrossing and great activity and change connected with their comparatively easy conquest of and settlement in the Promised Land, where they found cities, villages, houses, vineyards, and well-tilled fields ready without having to toil hard to make them. But again, later on, when they still had an abundance of work, as after their complete settlement in Canaan they again began

to backslide, rebel, become idolatrous and ungrateful to an even greater extent than did the people of the Wanderings. So that we may conclude that the waywardness of the latter period arose solely from the innate perversity and wickedness of the human heart; and was thus traceable to the same source as the wickedness which led to the Dispersion over 500 years before; still earlier by over 100 years to the Deluge; and still earlier by over 1,600 years to the Fall. Nations, like individuals, often fail to fully realize their mercies; and often grumble when they have least cause. During the Egyptian bondage they had full cause for discontent. During the Wanderings they had none; and could not plead overwork and hard impossible tasks under the lash as an excuse.

The Designer of the human frame knew exactly its requirements for work, the proportion of labour it can bear and the quantity of rest needed to recuperate body and mind after it. So does He as regarding families, tribes, and nations, as well as mankind as a whole. Some require more work or rest and others less. The Hebrews were His special care. He knew, studied, and legislated for them with especial care and exactitude; and indoctrinated them in this as in other sanitary matters, not only for their own sakes but to educate the world: mankind being to a large extent alike and endowed with very similar capacities, both for labour and for rest.

This Jehovistic division and apportionment of labour for the early Hebrews, by which He, while teaching obedience to and faith in Him, also inculcated that people, as He still does us in its systematization, regulation, sub-division, and combination; and shewing it may and ought to be sanctified and made sanitary and healthy in a public, communal, and even racial point of view; was eminently wise and far-reaching; and that in various ways. By division of labour, such as He inculcated and carried out, each individual, family, and tribe knew exactly what was to be done, and thus ensured its fulfilment by the responsible agents. By systematizing it, it made their labour lighter, easier, and pleasanter. By combining it, He inculcated how all might conjoin labour for the common national good. By sanctifying it in Tabernacle work and service He shewed that work for Him is our chief duty here. Thus the Jehovistic laws for work among the early Hebrews promoted the public concord, health and interests; for national commerce and industry are similarly influenced thereby for good. To the frame of every individual in the whole nation this mutual general work gave a healthy stimulus to muscle, nerve, and the entire body; thus promoting public health, strength, and longevity. It was beneficial to the national mind and heart, as it prevented disputes, jealousies, anger, and similar untoward moral and social evils, resulting

from rivalry. Although even among them it did not always do so, as Moses felt with his kinfolk (Numb. xii. 1; x. 15). So also its aim was to benefit the public human soul; and promote a healthy friendly spirit towards our fellow men and God. In brief it was eminently sanitary for the entire human entity of the nation. The judicious manipulation of the multitudes that combine to form nations is a most important matter from a sanitary point of view; using that term in its fullest aspect.

It must be admitted that during their forty years' educational training in work and labour, the Hebrews of the Desert Wanderings had exceptional advantages as a people, such as no nation had before or has since had. This was one that ought to have been seen, felt, appreciated, and followed by the entire congregation, as it was not evanescent and slight, but frequent, continued and great. A good example is the best of all teachers, and this the Israelites had. Even when thus indoctrinating the Hebrews in vital truths, and among other things the benefits and blessings of industry and the best methods of working to attain desired ends for the public good; He Himself was furnishing the best of all teachings. For had not their race had His constant and deep care for ages? Had He not ever since the call of Moses, their earthly leader, 'neath the shadow of Horeb, been working for them as a race; shewing them in innumerable ways and on many occasions, by signs and wonders and miracles; feeding, clothing, fighting for and caring for them in every conceivable way; how zealously they, too, ought to work for their own benefit and the furtherance of His great cause towards the entire human race as well as themselves. Nay, from the very beginning of created things the most untiring of workers on a majestic scale has been the Deity. These thrice fortunate and highly favoured Hebrews now had Jehovah as a fellow-worker and exemplar. He worked strenuously and continuously for them: and desired them to reciprocate with equal alacrity for His honour and service and their own good. It had been well for them that they had fully accepted and thoroughly acted up to His teaching during their forty years' educational training in the Desert.

Carefully regulated work and exercise, duly apportioned to rest and recreation, now deemed potent factors in all modern systems of hygiene, have thus been clearly recognised as such, and as good alike for the human body, mind, and soul, as far back as the days of the Wanderings and the monumental law which Jehovah then divulged for our earthly guidance, which contains rules for nationalizing labour that are exceptionally invaluable, for they closely correspond with those which secular experience is only now beginning to discover, among the most enlightened nations.

CHAPTER XXII

PUBLIC REST

"God had given rest to the people" (1 Chron. xxiii. 25).

That rest is a most important factor in the sanitation and in the sanitary record of nations: and also how the particular hygienic item here spoken of is best accomplished; are both admirably illustrated in the Holy Scriptures; especially in the history of the Hebrews of the Exodus; a marvellous and momentous story, purposely minutely detailed for their benefit and ours.

Before receiving the monumental hygienic lessons of Sinai and the Desert, lessons both practical and didactic, the Hebrews had terrible experiences to undergo of a preliminary nature, and meant to prepare them for the great events and the deep tuitionary laws that were to follow. The Divine educator of the Hebrews, hygienic and otherwise, began with the call of Abraham. Its initial stages shew, and were meant chiefly to point out this great fact, that Jehovah's favour is the greatest of all factors for prosperity, not only in health but for success in all other matters: and also that it is an indispensable one. Under this, Abraham, Isaac, Jacob, and their belongings were led onwards, flourished and increased; until the latter, with his 70, went down into Egypt, and there at last filled all the land, outnumbering their Egyptian hosts, who became jealous and afraid of them. Then succeeded education of another and bitter kind, that which springs from forgetfulness of and ingratitude to God. Jehovah had to deal with two nations, the Hebrews and the Egyptians: the former His chosen people; the latter His foes. But His purposes were chiefly directed to promote the interests and welfare of the Hebrews. But these had behaved unwisely by largely forgetting the God of their forefathers and lapsing into idolatry (Ex. iii. 13). Jehovah had first to check, oppose and win them back. And, calling Moses and Aaron for His instruments, began a course of punitive and educational action, meant to effect the following purposes:—

1st. To shew the Hebrews the unwisdom of permitting

others, even friends, to lead them into sin, especially that most heinous one, idolatry.

2nd. That the gods of Egypt, on which many of the Hebrews now leant, were impotent, false gods; and that the God of their forefathers, Jehovah, was the sole, true, and indeed only God.

3rd. To shew the Hebrews He had not forgotten them or His promise to their forefathers; if they trusted, obeyed, and followed Him.

4th. To win them back to their heavenly allegiance, by befriending, emancipating, and aiding them in every possible manner, earthly and eternal; physical, mental, social, moral, political, and spiritual. By educating, elevating, and aiding them to fulfil their high mission as individuals and as a people.

5th. To shew the Egyptians their folly; and give them a chance to reform and turn to God.

6th. To give mankind, individually and collectively, nationally and racially, then and in the future, a monumental, historical record and lesson for life conduct: and warning to avoid forgetfulness of Him and His laws.

In Egypt, under Joseph's fostering care, as well as after his death and the demise of all that generation, "the children of Israel were fruitful and increased abundantly and multiplied and waxed exceeding mighty; and the land was filled with them" (Ex. i. 6-7). They then enjoyed the rest and peace of body and mind necessary for this prosperity; the chief factor in which was the Divine favour and blessing. But a material change occurred. A new king arose, probably one of a new dynasty, perhaps from Thebes; and hostile to the Hebrews. He "knew not Joseph" and was evidently ignorant of what he had done for Egypt; but jealous and afraid of the Hebrews, who were now "more and mightier" than his own people. He therefore enslaved, set taskmasters over, and "afflicted them" (Ex. i. 11). By God's favour, however, "the more the Egyptians afflicted them the more they multiplied and grew" (Ex. xi. 12). This new feature aggrieved the Egyptians, who now "made the Children of Israel to serve with rigour, and they made their lives bitter with hard bondage in mortar and in brick and in all manner of service in the field" (Ex. i. 13-14). They treated and made them serve with rigour, and endeavoured to control and curtail their continued increase by causing their new-born males to be drowned (Ex. i. 22). Later on, Moses having been saved from this fate and grown and become de-Egyptianized, "he looked on their burdens" (Ex. ii. 11) and the oppression which continued unabated. Still later, after Moses

had fled to Midian, the Hebrew slavery increased, so that the Israelites "sighed by reason of the bondage, and they cried, and their cry came up to God" (Ex. ii. 23); whose ever open ear "heard their groaning" (Ex. ii. 24). Kindness may and has made slavery bearable and even pleasant. But not so the Egyptian yoke. This was marked not only by unkindness but by decided cruelty. By day the Israelites had no rest from prolonged heavy work under the lash of the taskmaster. By night they enjoyed none of the balmy oblivion of sleep, but only such as was curtailed or disturbed by fear of to-morrow and its horrors. Nor had they the seventh day intermission in that heathen land to give them quiet and repose to body, mind, and soul. Thus far their affliction was beneficial, inasmuch as it brought them back to their allegiance to God when reminded of Him and His power (Ex. iv. 31).

The earlier intercessions of Moses and Aaron with the despot Pharoah, on behalf of their countrymen, only made matters worse. They were not permitted to feast to God in the Wilderness or to "rest from their burdens" (Ex. v. 5). Previously they had straw wherewith to make bricks. They had now to gather this for themselves; and more work was enforced; so they were "scattered abroad throughout all the land of Egypt to gather stubble instead of straw" (Ex. v. 12-13). And their taskmasters hasted them to fulfil as much work as when straw was supplied (Ex. v. 14), and they had so much extra toil. For the non-fulfilment of their work and impossible tasks the Hebrew officers or overseers set over them by their taskmasters were beaten (Ex. v .14); being held responsible for their subordinates. Complaint and appeal to Pharoah met with no redress; they were told they were idle and no remission was made in their toil and bondage. The Hebrews became so distressed that they ceased to "hearken to Moses for anguish of spirit and for cruel bondage" (Ex. vi. 9). They had neither physical rest of body; still less mental ease and tranquility; no time for themselves for spiritual self-commune. Night and day were alike devoted to excessive manual labour and mental disquiet; to unremitting toil not for themselves or monetary equivalents, but for others, and these their worst enemies; work both dispiriting and degrading; and apt to depress body, mind, and heart. For what to them were the treasure cities of Pithom and Raamses they had to build; the pyramids and dykes they had to construct; or the canals they had to dig? Their work was too heavy for humanity. Jehovah, the all-seeing, called it sorrows, oppressions, affliction, bondage and burdens (Ex. iii.; Ex. vi.). And they were enslaved not in one but in every respect; in body, but also in mind, morals, heart, and soul. Physically, they were enslaved to Pharoah, spiritually under

Satan, many being idolators like those who at first befriended but now enslaved them. So deep became their despair that they felt inclined to refuse further advice from Moses and Aaron; and even to throw off allegiance to Heaven (Ex. vi. 9).

The momentous period occupied by the ten plagues sent by Jehovah as an ultimatum to compel Pharoah, the leading despot, to let the Israelites go, was one to them of alternate elation when he promised acquiescence; and of corresponding depression of spirits when he hardened his heart and broke his word. It was as a whole a period of deep unrest to the entire Hebrew congregation, quietly prepared as they no doubt were for the journey. Never in the history of the world had a people more need of a respite of rest and quiet of body, with ease of mind and tranquility of heart, than had these unfortunate Hebrews. But for Divine aid, never had a race been more nearly crushed, if not obliterated physically, socially, politically, morally, and spiritually. Nor was this confined to certain tribes only. It extended to and included the entire congregation. The crisis was vital; and it was national. Because this long continued condition of constant deep, mental, social, and physical unrest was highly unsanitary to body, mind, and soul, to their higher as well as their lower nature. And, but for the Divine aid and His superhuman efforts to frustrate the evil and obviate its pathological results on body and mind (Ex. i. 21) would have acted most disastrously on the Hebrews as a nation, and induced the direst consequences not only on their health but on their longevity, increased prosperity, and mission as a race; and probably would have caused their comparative extinction as a people, certainly as a prominent and tutorial nation for the world. But out of this, in pursuance of His gracious plan for the redemption not only of that people but of the entire human race, Jehovah led them out and into a more sanitary if not perfect sanitary environment as regards rest of body, mind, and spirit; by removing them from the Egyptian yoke, freeing them and leading them into the adjacent Desert, to enter on the more active and pronounced part He had destined them to take in the education, enlightenment and redemption of the world; a mighty and honoured career largely marred, alas, by themselves alone. In the Desert and amid its solitudes and its rest, He could not only give them the most perfect ease of the entire Man; but also teach them how much human health and life depend on these factors; and lead them to think and meditate on and desire and live so as to attain the peace and rest they expected to and might have enjoyed in the earthly Canaan for which they were bound; and beyond, that of those we expect to find in the Heavenly Canaan of the future.

The first nine plagues did not accomplish Jehovah's full

purpose. They brought the semi-idolatrous Hebrews to their senses and allegiance to God, however. But the Egyptians and their ruler were obdurate, although they were terrible inflictions; and superhuman to an unbiassed mind. In the first the water in the land was turned to blood. The second was a plague of frogs; the third one of lice; the fourth one of flies; the fifth a murrain among domestic animals; the sixth one of boils and blains among man and beast; the seventh one of hail and fire among man and beast; the eighth one of locusts; the ninth one of three days' darkness. Of these the fourth, fifth, sixth, seventh, eighth, and ninth only affected Egypt proper and the Egyptians; and not Goshen or the Hebrews; a marked incident meant to influence both; to terrify the one and assure the other. And they chiefly affected property. Then came the final and worst catastrophe, one which affected their homes and themselves. This was the tenth plague, the death in one night of all the Egyptian first-born; including their cattle; those of the Israelites being spared. This so frightened Pharoah and the Egyptians that they were glad to let the Hebrews go; "lest we be all dead men" (Ex. xii. 34). How elate the Israelites must have been when, their slave drudgery over, and their uncertainty of freedom; they had assembled at Raamses and left, after having, no doubt to their surprise, wealth and goods of great value thrust upon them; and marched, fully "harnessed" and prepared and in definite order, into the Desert. This joy was national. The event affected all; high and low; from Moses and Aaron downwards. They went out with a high hand (Ex. xiv. 9), as conquerors rather than fugitives. But once more hope was followed by disappointment, when they saw Pharoah and his host in hot pursuit. The discomfiture of the tyrant once again brought gladness and, better still, gratitude, "when Israel saw the work which the Lord did on the Egyptians," and they now fully feared and believed Him and His servant Moses, whom they had hitherto alternately trusted and doubted (Ex. xiv. 31). Nor can we wonder that the whole congregation joined in the immortal triumph song of Moses (Ex. xv.) as they looked back on the now placid waters of the Red Sea, smiling in the sunshine as if pleased with its late feat; free men, a new-born nation, with spirits elate and minds at peace, one of the most important forms of rest. For now they could sleep tranquilly; not lie awake in dread of the morrow's lash and toil; or to dream of hard taskmasters, cruel blows, and impossible tasks. Those two great factors of health, nightly sleep and rest of body and mind, to which they had long been strangers, were now secured. Few things tend to undermine the health and shorten the life more than the lack of these. The new boon, moreover, would

aid Jehovah and His other sanitary factors in keeping the Israelites mentally healthy, and promote His monumental projects, for which they were to be the instruments. The Hebrew millions had now only to raise their eyes by day to see the cloudy pillar that betokened the constant presence of Him who protected and gave them these boons, rest of body, mind, and heart, and safety from their enemies; and by night to see the mysterious pillar of fire that marked the same omnipotent Omnipresence, whose eye never sleeps, but watched over their slumbers and kept them to re-awake in safety on the morrow: the Being who had freed and led them where they had no work but their own to do; where there were no taskmasters to coerce and beat them; no one to work for but themselves and kin; no one to overlook their labour save friendly faces. No nation of that day, and few since, have stood more in need of physical and mental rest and peace of heart than did these Hebrews of the Exodus. Nor had any people more need of assured and undisturbed sleep, that special and periodically recurrent variety of rest in which both body and brain are stilled for a period varying from one-fourth to one-third of the 24 hours, to mark it as one of the most urgent necessities of life and health with all humanity. The periodic and hygienically provided darkness of night is universally welcome to nations as well as individuals. For then Man's bodily and mental natures rest and recuperate to enable them to resume work on waking. Nature in a sense enforces this hygienic necessity on Man, so that revelation is less required and seldomer given to remind us of it. But the necessity for and value of rest in its different forms, both as a hygienic, that is as a health-preserving and as a recuperative or physiological agent was pointed out fully in the Mosaic hygiene: and even better enforced in the days of the Wanderings than it is at the present enlightened day; because it was more fully believed in and was supernally ordained and enforced, not for special individuals or classes, but for the masses. To have a sufficiency of undisturbed sleep is an especial boon and necessity for all mankind. It is a national, nay, a racial necessity; and, still more, a special want of the poor and the working classes; and thus becomes not a private but a public need and universal blessing. And He who bestows it, directly or indirectly, especially to toilers in body or brain; is their truest benefactor; as was Jehovah when He released the Hebrews from Egyptian bondage and gave the nation peace, and its quiet, rest, and sleep; and the ease of mind and heart which lead to these, and that add to their multiple benefits on humanity. This was no doubt fully realized at the time by contrasting the Israelitish present with their past in Egypt under the tyrannical Pharaoh.

That the Divine Sanitarian deemed the subject of rest one of national as well as individual import is shewn by the fact that He not only led them into an environment of which this constituted one of the chief factors: but also by His enacting prominent, full, and stringent laws therefor; and making these obligatory, not for any particular tribe or section of the Hebrew community, such as their leaders, the Priests and Levites, &c., but for the laity at large, which included all classes. The far-seeing framer of these laws knew that the nation that does not properly apportion its rest to its work, and neither underworks nor overworks its people, is unwise, and certain to court ultimate disaster. Frequent periodic rest is as necessary for nations as for individuals. The great infallible prescient mind knew then from foreknowledge what history has since and is even now proving, namely, that the nations that break Nature's, that is God's laws, and either waste their physical, mental, and other energies in sloth or frivolity on the one hand; or who, for various reasons, especially commercial or industrial greed, overtax their mental and physical capacities by being over-busy, without relaxation of the bodily strain, are sure to suffer for it in worldly ways, in addition to the still more important moral and spiritual detriment which invariably flows from neglect of God's higher and still more stringent laws for Man's better and immaterial nature.

The laws which Jehovah then made to ensure rest and quiet for the Hebrew frame, mind, and soul were not only tuitional and compulsory for them, but wise for other nations and the race to follow; as necessary for modern times as for them; and therefore worthy of the closest study and the fullest obedience by us. It is in comprehensive and far-seeing hygienic matters of this kind that the influence, interaction, and interdependence of the body on the mind, morals, and spiritual nature of Man, are most observable; and most potent for good for their observance, or for evil by their neglect, on communities and nations, as well as on individuals. Overwork a nation physically, and its mental powers also suffer from overstrain; while the morals and its spirituality are also apt to deteriorate by neglect. On the other hand, sloth or laziness of body are apt to draw the mental capacities into its vortex, and so indirectly the higher nature and interests of the community or nation. The Prescient foresaw and legislated against all this. The story of cotemporary and preceding nations and the human race as a unit was an illustrative example and one which He did not wish the Hebrews to imitate or follow. They were meant to be a model people in this as in all else. God legislated accordingly to ensure for the Hebrew congregation at large the rest of the kinds and quantity necessary for the welfare and health of their

bodies and minds, as well as for the moral, social, and spiritual life and highest interests of the entire human entity for time and for eternity. Look at them how we may, these laws of God are in every sense of the word hygienic and wise, and admirably calculated to preserve the vigour, health, longevity and welfare, as well as the happiness, of the whole man, and the whole race. And they are especially fitted for and welcome to the labouring classes and the poor; those classes that everywhere form the majority of mankind and whose lot in life is hardest: and therefore also to those communities and nations which for commercial or manufacturing reasons are the most zealous, active, and enterprising.

1. The nightly rest that we term *sleep* was the first thing Jehovah gave the Hebrews by the Exodus. How deep and refreshing would that be which they enjoyed at Etham, their first camp after leaving Rameses or Succoth; and kindlier still that of Shur, their first after seeing Pharoah destroyed. Unlike the repose to which they had long been exposed in Egypt, their sleep was now abundant and perfect, for mind and heart were at ease; knowing they were now free; bound for a better land than Goshen, which was to be their own; as was their labour in the future; untrammelled by taskmasters to lash and enemies to fear. How easy and comfortable life was now compared with that in Goshen. How refreshing their rest and sleep they had to the full; and how perfect both might have been in the years to come if they had fully trusted, obeyed and followed Jehovah and His laws and statutes. How much and often their frequent discontent and rebellion, and the attendant mental disquiet must have interfered with their bodily and mental ease and rest during the Wanderings. Jehovah laid down no law for sleep like the fourth for the Sabbatic rest; because none was required to make the long wearied Israelitish brick-makers enjoy their nightly repose in the Desert. All they required was the opportunity. And this God gave them by giving a totally new environment to include this as an important, nay, imperative, sanitary factor, necessary for their bodily health. The relief, rest, and resulting sleep thus obtained were universal and national. The meanest as well as the highest enjoyed and benefited by it. The sleep they now tasted to the full was not figurative, but real; and given that it might rest body, brain, heart, and spirit alike (John xi. 13). He "gave His beloved sleep" (Ps. cxxvii. 2); and their sleep

was now "sweet" (Prov. iii. 24; Prov. iv. 16; vi. 4; Jer. xxxi. 26; Eccles v. 12); nor could the Egyptians take it away (Prov. iv. 16; vi. 4). Yet sleep is often used typically and its deprivation looked at as a calamity (Dan. ii. 1; Eccles viii. 16); as it is also typical of death (Ps. xiii. 3; 1 Cor. xv. 51; Mat. xxvii. 52).

2. The *Sabbath* rest. For this and other forms of rest equally necessary for Man, Jehovah made special punitive laws, and gave them in codified form from Sinai. These were all national and imperative on every Israelite; because as necessary for the welfare, prosperity, and even continuance of the Hebrews as a body, as for the same results and the health of the individuals who composed the community; as necessary for that people in their corporate as in their individual capacity. The Divine Sanitarian gave the Hebrews in the Desert not only all the physical and physiological necessities they required in their new sphere to make them happy healthy, prosperous, and a model people; such as food, drink, raiment, flocks, herds, ease of mind, freedom from slavery and enemies, a pleasing outlook for the future and undisturbed nightly repose; but to this He superadded an invaluable code of laws for their earthly guidance, and learned willing, God-fearing men to teach and enforce these. These laws embraced the most important of all, the Decalogue; one of the most important of which is the fourth item; which re-enacts the keeping of the seventh as a holy day and day of rest: an ordinance no doubt initiated at the beginning (Gen. ii. 2-3), but now re-ordained because the sacred character of the day as one that Man should devote to rest and holiness, had become forgotten, and even perhaps largely secularized by the Hebrews, demoralized by Egyptian intercourse. It was therefore reenforced at Sinai; and, aware of its importance, made one of the most prominent laws of the vitally leading code of the Mosaic law, namely, the Decalogue; and, instituting it, not for the welfare of any particular class of the Hebrews, their leaders, chiefs of tribes, the Priests and Levites, &c.; but, as the day existed before they appeared on the scene, making it not only for that nation, but, as at the beginning, for human kind as a whole. The Sabbath was to be a day of *rest*, as its name implies (Lev. xvi. 3; xxiii. 3; iii. 32; ii. 34, 21), a day of physical, mental, and spiritual rest.

A day specially made and set apart for Man, not Man for it (Mark ii. 27; Is. lvi. 2); and for beast also (Luke xiii. 15). A day of which the Son of Man is Lord (Luke vi. 5); on which there should be no trading or business done (Neh. x. 3); on which even the burnt and other sacrifices were mainly remitted to week days, though not always (1 Chron. xxiii. 31). "So the people rested on the seventh day" (Ex. xvi. 30); as their Maker and Leader did (Heb. iv. 4; Gen. ii. 2; Ex. xx. 11; xxxi. 17). "Ye shall keep the Sabbath" (Ex. xxxi. 14-16). My Sabbaths shall ye keep (Ex. xxxi. 13; Lev. xix. 3; xxvi. 2; Ezek. xxii. 8; xliv. 24). God saw it was necessary to intermit their toil once a week, to rest their bodies, minds and hearts; give time for spiritual refreshment, recuperation, and enlightenment by self-communion, study of the law with Priestly and Levitical aid, contemplation and prayer to Him. Their Sabbatic rest benefited and strengthened their heart and soul as well as their body (Deut. xxv. 19; Esth. ix. 16; Ps. lv. 6; Eccles. ii. 23; Is. xiv. 3; Mat. xi. 29); and thus profited the entire human entity. History attests and is even now proving the multiple benefits conferred on nations by strict Sabbath-keeping; that is by the faithful observance of one of God's most stringent laws for the human body and its contained soul. This Sabbatic enactment and tranquility every seventh day is a racial institution, and hygienic from every point of view; and it is so, view man as we may, in his corporeal, mental, moral, social, political, or spiritual capacity and relation; and therefore of the utmost value to humankind in the mass; as well as commemorative of the Creator's rest from His work (Gen. ii. 2); and also of that of the Saviour (Acts xx. 7; 1 Cor. xvi. 2): and also as calculated to give a foretaste on earth of one of the chief characteristics of life in Heaven, the eternal Sabbath (Job. iii. 17). To the boon of the Tabernacle, *where* the Hebrews might worship, the Sabbath was a welcome adjunct, *when* they might devote their time fully to devotion, contemplation, and worship; aided by spiritual advisers to develop and strengthen their innate religious instinct, and help to further His personal instruction, by explaining, inculcating and enforcing the very complex code of laws He had bequeathed them from Sinai, with a view to promote His mission in which He had planned and embarked them, to make them an exemplar for the

nations and a missionary people meant to spread His name and fame and His laws abroad over all lands and to all time. Nor did Christ abrogate it, but came to fulfil it (Mat. iii. 17); especially the Decalogue, of which the fourth law is so essential a part. The institution of the seventh day's rest is as binding and necessary now, and will be as long as time lasts, from Man's every aspect, physiological and hygienic, corporeal, mental, social, moral, and spiritual (Mark ii. 27).

3. But the Hebrews were placed under a peculiar and special tuitional dispensation, in which strict obedience was imperative. And, as ceremonially and typically of rest and educational of agriculture, they were ordered by the Mosaic law to let their land rest and lie fallow every seventh year; the week of years or Sabbatic year. "Then shall the land keep a Sabbath (Lev. xxv. 2; iv. 6); and "enjoy them" (Lev. xxvi. 36, 35, 43). This was a "year of rest to the land" (Lev. xxv. 5; Ex. xxiii. 11). Neglect of this law was punitive (2 Chron. xxxvi. 21). The law is not purely typical but hygienic and healthy for the soil. Modern agriculturists find it profitable and recuperative of the strength of land to let fields lie fallow on the seventh year (Lev. xxvi. 34, 43). Modern knowledge having at last discovered the practical wisdom of the early Divine enactment in the Sinaitic Code. The modern rotation of crops is another variety of *rest* for the land.

4. So also for an educational purpose, to teach obedience to God's laws and no doubt also to indoctrinate them in the hygienics and philosophy as well as the practice of agriculture, the Hebrews were ordered to permit their land to lie fallow and rest every fiftieth year, the Sabbath of Years, Sabbath of the Land, or year of jubilee (Lev. xxv. 20); during which they were commanded neither to sow, reap, or gather any of the aftermath or fruit. This was in addition to the seventh year rest. And was meant to benefit the exhausted land and give it time to recuperate by physical and physiological and chemical rest. It also agriculturally eased the toil of the human beings and the lower animals employed thereon. Like the Sabbatic year it was hygienic and healthy and agriculturally beneficial; and is now equally so when followed. All Jehovah's laws are practical and beneficent, as well as far-seeing and efficacious. Nothing is lost by strict obedience. Nor would it be now any more than then.

5. The early Hebrews, moreover, had other days of special rest. These ceremonial holy days were called "feasts," and correspond to our holidays; the hygienic benefit of which is undoubted to body, brain, heart, and soul, by the rest, relaxation, and change they give to weary mankind. These Hebrew festivals included the Feast of Trumpets (Lev. xxiii. 23); the Feast of Atonement (Lev. xxiii. 30); and the Feast of Tabernacles (Lev. xxiii. 21). These in Christian eyes became abrogated by the new dispensation in which they believe.

Jehovah thus provided amply regarding that most important sanitary factor, rest, for the Hebrews, not only as individuals but as a nation. And He did this, *first*, by removing them completely from that oppressive peace and quiet destroying agent, the bodily, mental, social, and spiritual unrest and bondage of Egypt; and, *second*, by leading them where they would be practically undisturbed and able to fully obey His laws of health and enjoy the repose He gave them, the nightly sleep; the peace and quiet of the seventh day's rest, and that of occasional special holidays: and *third*, educating them by definite and imperative laws that laid down how often this rest was to be taken. These laws defining God's will and proving His infallible hygienic wisdom, were planned, codified, ordained, and divulged for the people at large: and neither Priest nor Prince could prevent or curtail them. And they were imperative. All had to obey, leader, Levite, and people. They were punitive in one form or another, if broken. And they benefited not any particular tribe, but the whole nation, by giving not only the popular body, but also the mind, heart, and soul the opportunity for recuperating from the work-day and week-day exhaustion. They were corporeally, mentally, socially, and spiritually hygienic and health-giving; and beneficial to man and beast alike. Through the Hebrews the Divine advice and command have been handed down to us and all mankind. Nor can our advanced and enlightened ideas improve or abrogate them. On the contrary, events have amply proved and endorsed the hygienic utility and imperative need of a due supply of sleep, a weekly rest, and frequent holiday relaxations from toil; a necessity which seems ever increasing as time rolls on, and the human race and competition increase to provide daily bread. During these different periods of rest the camp was quiet, calm and hushed. The congregation had then time and opportunity to attend to the rest and the best interests of their higher nature. During the six worldly days their earthly interests were their chief care. But now they could study the law, with Priestly aid and an open Tabernacle. Thus were the

health, happiness, and prosperity of the tribes benefited by one law; and their great national mission for God's service promoted. While their bodies were recovering from toil they could then throw off mental worry, so apt to prevent self-communing on their Egyptian and even later idolatry and other evil ways; and so be led by God's law and His grace to better fulfil their earthly duty to themselves, to their fellow-men, and their God; that duty which consisted, then as now, and ever will in loving, serving, and obeying His law, or, as it is put in New Testament terms, "doing His will" (Heb. xiii. 21). Jehovah put the Hebrews in the environment best calculated to ensure strength and vigour of body and brain, healthy mentation; rest and leisure to think and act wisely; laws and His vitally important aid to aid them to live as He desired; had they fully embraced the opportunity. He gave His chosen people that most important physiological and hygienic agent, rest, duly apportioned according to Nature's laws with work, equally essential to fullest salubrity. And He did this with a view to their national health and well-being; and the furtherance of His beneficent, comprehensive, and far-reaching plan for their future, and for that of the race of which they were only a small section; but which they were meant, as His agents, to directly and indirectly enlighten. What nation before then or since, has ever been so blest of God or so great as to have "God so nigh unto them" as Israel thus and then was; as to have "statutes and judgments so righteous as all this law" (Deut. iv. 5-8). And wise are the nations that keep and do them, and in imitation make this their wisdom and understanding, for they are thus the most likely to have it said of them, as it might have been of Israel had other nations heard of these statutes being fully kept, "surely this great nation is a wise and understanding people" (Deut. iv. 6).

The disastrous effects of prolonged lack of rest are moreover illustrated elsewhere in the Holy Scriptures. Thus these may be so dire and severe as to constitute a form of very grievous punishment, and one which by threat is likely to deter from sin. Thus a deprivation of rest was threatened by Jehovah as a condition to be avoided (Deut. xxviii. 65-66; Is. lvii. 20). On the other hand rest is a blessing so great as to be a strong inducement for nations as well as individuals to act wisely and have this sanitary factor as its great reward (Deut. xxv. 19; Josh. xxi. 44). Individuals who have suffered from a lengthy lack of sleep, mental unrest, severe physical pain, deep anxiety, grief or dejection, will best understand the value of the boon bestowed by Jehovah at this period of Israelitish history; not on one individual, family or tribe, but on the entire nation: and not from one of these different causes, but from all of them com-

bined, and in their utmost intensity. Their physical torture from the lash and overwork: their mental anguish from unappreciated, unrewarded worry and toil: their grief for their lost liberty and the depth of their oppression; were all most intense and so unremitting as to force them to remember and cry to the God of their forefathers and of their great ancestor, Abraham, forefather of whom they were so proud; God whom they had evidently forgotten. And there seemed no possibility of a release or even a brief reprieve for a day or only an hour. Rest of body, brain, heart, and soul was then, of all the many and important sanitary factors, more or less necessary for health and happiness on earth, that which the Hebrews most urgently required: and that agent the absence of which might, sooner than almost any other, have entirely crushed the Hebrew people collectively; and therefore marred or interfered seriously with Jehovah's great scheme for the redemption of mankind, and their emancipation from sin. It was the boon the Hebrews most craved for then; and that for which their bitter cry went up from the plains of Goshen to Heaven.

Jehovah, the highest of all sanitary authorities and supremest wisdom regarding rest and all other hygienic factors, thus promulgated over three thousand years ago, infallible laws on this subject, that time and modern human intelligence can only endorse and copy. Sleep and the weekly rest are indispensable factors both as hygienic and curative agents in modern national life; without which in their entirety, health would languish, deteriorate, and decay, life be curtailed, vigour lessened, and families, tribes, nations, and even the race sink into physical, mental, moral, social, and spiritual inferiority. The various "feasts" above spoken of are still kept by the now widely scattered Jews. What Christian sanitarians deem necessary to substitute for these in the shape of public holidays is an important national or communal problem. The wisdom of keeping the seventh day's rest inviolate and strict; and the equal wisdom of a due attention to sleep by all mankind, need scarcely be further spoken of, as it is self-evident, time-hallowed, and Heaven-endorsed.

By perfect knowledge of what was required for Man's complex nature, and a masterly adaptation of means to ends, and these of the simplest description, on the part of Man's greatest friend, who is at once his architect and his hygeist, Jehovah thus, at the same time and by one and the same method, promoted Man's earthly and his eternal interests, and so advanced His own beneficent and supernal scheme for our human reascent in the physiological, moral, mental, and spiritual worlds of nature, to reach if not surpass the eminence from which we have fallen; a process which was meant to have the Hebrews as its prominent factor and primary earthly leaders and forerunners.

CHAPTER XXIII

PUBLIC CLOTHING

"Any perish for want of clothing" (Job xxxi. 59).

The proper clothing of humanity is even more a matter of national than it is of personal import, and when Jehovah led the Hebrew congregation into the Wilderness, He thereby incidentally undertook the unavoidable and most important sanitary task of providing suitable clothing for them during their forty years' Wanderings; and to do this under the greatest and most discouraging difficulties that implicatd both the place, the circumstances, and the people. The occasion developed a matter in itself of grave public sanitation. He had to cater for the clothing, not of an individual family or tribe, but for that of a nation. But this hygienic emergency was met fully, as were all other sanitary measures, such as their dieting and drink, as became the almighty power and resources of their great and Divine leader, the omnipotent. This was only another intentionally developed opportunity to shew His love and care and to develop and discover their gratitude.

Clothing was as necessary for the Hebrews as for other people, especially God-serving ones. The climate of the Arabian peninsula is mild. Many would call it warm. So also of Canaan. But few countries of like extent have such diversities of climate, weather, and season in such a limited space. But even in the very warmest regions, for example, those bordering the Thermal Equator, provision has to be made for the usual and universal, seasonal and daily changes of temperature and weather. Go where Man will, in the Arctic, Temperate, or Equatorial Zones, especially on land, the nights are invariably chillier than the mid-days; and the people thus require more clothing then. So also the winter of any place is colder than the summer months; and the inhabitants require additional clothing. One year, moreover, may likewise be colder than the preceding or following one. And in every quarter of the earth we meet with weather variations and alternating hot and cold days or longer periods, that require equal care regarding the clothing, in order to give comfort and preserve health. The

latter item, the salubrity of individual tribes, and the nation as a whole, was an all important matter for the future well-being and even existence of the Hebrew people.

In order to meet and sanitarily counteract varying morbific weather conditions alone, different thicknesses of clothing were therefore required, even for these physically hardened ex-slaves, in their new out-door and tent-sheltered life, especially till they became inured. The women and children, both more delicate than the men, would find this process of acclimatization more trying. Additional clothing would be required to meet and oppose different degrees of cold, often of sudden access. For the Hebrews to have lacked this would have been fraught with the greatest danger to the health not alone of individuals but of the community. A very large amount of the disease and death which annually occur in every country arises from this cause, namely what is termed a "chill" (because of its earliest manifestation); initiated by neglecting to change the amount of the clothing according to the temperature variations caused by climate, season, solar altitude, &c. This, namely a deficiency of clothing to meet the thermic variations of climate and season, was the very thing the Hebrews were apt to lack under the circumstances. Their tents, more or less open, and the night and winter cold, would tend to increase this danger from vicissitudes of temperature, and make additional clothing necessary in order to prevent much public inconvenience, discomfort, disease, and mortality, of kinds from which myriads suffer, shorten their natural lives, and die annually in every race and clime: this unwise or ignorant inattention or indifference to climatic, seasonal, and weather variations of temperature being one of the most frequent and serious, nay, dangerous, of all the many pathological factors against which the human race has everywhere to contend, at all ages, in every rank and profession. The danger now spoken of is a world-wide one and of daily occurrence, although unknown, unacknowledged, or ignored by the unthinking multitude, that is by the mass of human beings. To be under-clothed, that is to have too little of it on, was and still is far more to be dreaded as a morbific agent than over-clothing, that is having too much on. Even in the semi-tropical climate of the Arabian peninsula, when the mid-days were sultry, the evenings and nights would be cold by comparison. While the difference between the heat of summer and cold of winter would be still more apparent and dangerous. Both would have to be guarded against by the Hebrews, and their sanitary advisers, human and Divine. Clothing would or should then have to be taken off or put on to suit the varying daily and monthly temperature. Dress of varying thickness and warmth was thus a matter of great moment to that vast and

sanitarily ignorant Hebrew multitude; led as they were into an unknown, almost uninhabited desert.

But, in addition to time and constant use, there were certain other factors in their daily life routine that would likewise help to wear out the Hebrew clothing, and thus make new desirable or necessary. Moving their camp so frequently, especially during the first two years of their exile, would necessitate a certain wear and tear of their clothing, while putting up and taking down and carrying the Tabernacle, their tents, utensils, tending their cattle, &c. Other, and doubtless the chief factors were the frequent washings and cleansings prescribed by the Mosaic law. Other leading nations of that day, but Polytheistic ones, *e.g.*, the Egyptians and Assyrians offered sacrifices and performed ritualistic ablutions and washings of their bodies and clothing, similar to the Hebrews; and no doubt these were likewise to a certain extent sanitary. But these people were at home, and thus better able to renew their clothing than the Hebrews then were.

Still it was necessary now for Jehovah both to teach and enforce the great sanitary lesson of the close relation that exists between clothing, health, and disease. The clothing, particularly that worn next the skin, necessarily absorbs and retains not only physical and vitally inert, though perchance chemically poisonous matters; but also living microscopic, microbic, or bacterial organisms; as well as the gaseous and vapoury emanations of the body; all of them most abundant and virulent in disease. These are not only semi-putrescent and offensive to smell, but also noxious and morbific or disease-generating if reabsorbed into the body; the microscopic living forms being by far the most dangerous, for reasons already described. The long continued use of clothing, unfrequently changed or cleansed, of course tends to aggravate this evil. Among the Hebrews of the Desert, who no doubt wore the same clothing night and day for considerable periods, and seldom cleansed it, owing to the comparative scarcity of water for the huge host, this was a very evident and great hygienic danger. But in the Mosaic code and its intricate ritual it was chiefly in connection with another most important, nay, the chief of all sanitary factors, namely cleanliness, that the bearings and relation of clothing as a sanitary agent in our individual and public life history becomes most apparent. Cleanliness of the clothing, especially that which touches the skin, is necessary for health. Hence why it is frequently washed or changed when possible. Cleanliness of the clothing may be regarded as, caeteris paribus, synonymous with cleanliness of the skin and body; and these again as synonymous with health, strength, and longevity. The nation, therefore, which is most cleanly in its clothing is the most

judicious and the wisest from a sanitary point of view: and is likely to be the healthiest, most vigorous in mind and body, the longest lived, and most prosperous. Thus it was why the Hebrews had these points so strongly inculcated. Jehovah supplied the one, the clothing, and by His laws inculcated and enforced the other, the cleanliness.

It is chiefly, though not altogether the unlettered and the poor, who remain ignorant of these facts; and fail to perceive and act on the knowledge when better informed. The better classes often err as egregiously by perversity. To the former grades undoubtedly belonged the majority of the Hebrews of the Exodus. As slaves they had little or no time or heart for education. Although those of the later stages of the Wanderings had no doubt, under God's guidance and the tuition of Moses, attained a higher level in hygienic knowledge and sanitary obedience. The Deity legislated accordingly, and not only ordained special and frequent personal cleanliness of the body and the clothing, but made these compulsory at certain seasons and in particular conditions; thereby slowly and surely, and in the wisest manner inculcating the comfort, convenience, beauty, necessity, and healthiness of cleanly habits as regards the person and the raiment. These laws ordained that when the body was purified by water or washed it was almost invariably accompanied by the purification of the clothing in the same medium. Thus, in the course of time, by the constant repetition of the items of the ceremonial law, the Hebrews, especially the class usually most uncleanly, almost unconsciously contracted the habit of purity, both of the body and clothing; ultimately preferred it to their former carelessness regarding both; and willingly followed what they may at first have disliked and been inclined to object to or rebel against. Frequent washing of apparel wasted the Hebrew clothing when it was most valuable, because it could not be easily replaced; but neglect of this would have been to court disease; and that was then to be avoided at all hazards; even at the expense of the clothing.

The laws inculcating especial cleanliness of the clothing were especially necessary for the Hebrews under their new conditions of life and the strange environment of the Wilderness: for—

1st. Whereas in Goshen, close to the Nile Delta, they enjoyed the luxury of an abundance of water for cleanly purposes, as it ran past their door; whereas in the Desert it was often scanty and perhaps in most cases less accessible. Even when abundant, they had doubtless to go beyond their huge camp to fetch it. It gave them trouble to get it; so that both it and the

purpose for which they required it were more likely to be neglected than in Egypt.

2nd. Their now crowded and thus less sanitary camp life rendered it more necessary to promote special purity in the clothing, person, and other human matters, both for personal, family, tribal, national, and racial reasons.

3rd. They now lived in an even drier atmosphere; that of the Desert; one in which they naturally perspired more, therefore no doubt required and perhaps desired more frequent and thorough ablution of the body and clothing; especially as they wore the same garments long; and that by night as well as by day. The Hebrews reclined at meals, a raiment-soiling attitude: and often slept in their day garments, which were loose or closely fitting as the weather was sultry or chilly. This constant use of the same garments was insanitary if they were unaired and unwashed.

4th. The Hebrews, who were to be trained as a model people, had also to be taught to be exemplars and teachers of cleanliness in clothing as in all else; and to perform this function by the best of all preceptors, namely, example. And it was especially necessary to inculcate deeply on and to incline the not very docile or tractable Hebrew mind, not only with the idea of cleanliness of body, clothing, and their domestic surroundings and accessories generally; but also to instil a love and desire for this. To accomplish this was to lay the foundation of the entire hygienic law and sanitary creed, namely cleanliness.

5th. But the especial importance of cleanliness of the clothing is most of all evident in the diseased states of the body; when this becomes a matter of so much greater necessity than in its healthy conditions. This fact is also inculcated in the Mosaic code; and indeed it is chiefly then that this code does so strongly impress the fact. The Pentateuch was the first to point out that our clothing may both receive, foster, and propagate disease. And also the first to shew how the danger of this may be best avoided. These are all-important subjects which are often discussed in modern hygiene. In some diseased states of the body not only are our excretions largely increased, but also materially altered and vitiated. So that, absorbed as they largely are by the garments, they are apt to give them that sickly, unhealthy and sometimes offensive odour which it is unsafe to inhale, long enough to be absorbed by the lungs into the blood. A still greater

danger lurks in their being apt to be absorbed into the blood circulation by the skin ; to the early or ultimate detriment of health, which then goes below par, or even ends in the induction of disease. Of course these undesirable effects are all the more likely to happen when the clothing fits the body tightly like ours ; so that ventilation and evaporation are less complete than those of the Hebrews and inhabitants of Asia generally. The perspiration which coats and penetrates between the fibres of the garment dries and accumulates by constant addition, especially if the same articles are worn for months by day and night and also next the skin, as were those of many, perhaps most of the Hebrews of old. Again, in a large class of diseases, the infectious and contagious, and notably the exanthemata, it is the skin which is the main excretory agent in throwing off the disease and its special microbe. This it does in the form of eruptions, which end in scaling off the surface layer of the skin ; much of which debris necesarily clings to or lodges in the insterstices of the clothing, where it lingers till some other individual or perhaps several become infected by contact (contagion) or by inhalation (infection). This special and very important type of disease is illustrated in the Mosaic sanitary code by leprosy. But clearly, and by inference, the law and the facts relating thereto may and were doubtless meant to be applied to the large and entire class of infectious and contagious diseases ; a constantly increasing one, which comprises a very large proportion of the disease which everywhere occurs among mankind in every race and clime.

Another large and important class of diseases which are apt to soil and infect the individual clothing, and by accretion to accumulate on its surface or in its interstices, and thus to render the garments odoriferous, impure, apt to re-infect the wearer elsewhere by auto-infection, or to infect someone else, either by contact or by the dried secretion dust which shakes therefrom and blows about ; is that class of ailments termed "issues" in the Pentateuch ; a class which may be deemed to include a considerable number of different diseases in several different parts or organs or in different parts of these. Another class, not exactly of diseases, but rather of physiological conditions, which everywhere frequently or periodically affect men or women, or both, viz., childbirth, the periods, pollutions so-called, &c. ; are apt to soil the clothing and otherwise make it impure, unclean, odoriferous, perhaps morbific and dangerous

to health, especially if the discharges accumulate and putrefy in the interstices of absorbent clothing. The prevention of this catastrophe in minor or major forms, by judicious hygienic measures, is obviously a matter of much importance. It is particularly in these frequently recurring conditions or semi-diseases, and physiological or semi-pathological states, that the Mosaic hygiene legislates so wisely: and gives rules stating when, how and why the clothing thus soiled and thus apt to be rendered noxious or morbific by deposition and retention of the discharges or bodily excretions. In these laws, as a rule, washing of the body and of the clothing go together. Washing of the body alone would not be thoroughly efficacious, if the clothing remained soiled, and offensive, perhaps disease-laden. Washing of the clothing alone would be far less efficacious than it usually is if the cleansing of the body did not go along with it.

The clothing thus ordered to be cleansed by the Mosaic code was not any special part or article, especially that nearest the person's skin. As with the body washing it included the entire clothing; and for obvious reasons: though doubtless the part nearest the disease required special attention. The total amount of clothing purification and body washing inculcated and enforced by the Mosaic code in these different conditions and phases among the Hebrews during the Forty Years Wanderings must have been enormous, and individually very frequent, repeated, and universal. So that the cleanliness which may at first have been deemed unnecessary or frivolous would be ultimately considered healthy, pleasant, and indispensable. Frequent ablutions were common in the rites and ritual of Egyptian and Assyrian Priests. The Hebrew law extended it to the Levites; and even carried the injunction to the laity. It was Jehovah's desire to convert the Hebrew people into a purity-loving nation; and community known among other things by their excessive cleanliness and frequent washing of their bodies and their clothing. Could a better mode of hygienic teaching be devised? How much of the great healthiness of the Israelites in the Wilderness in ordinary circumstances was due to this alone? How much of the proverbial and providential freedom from disease, especially ailments of the epidemic class, arose from the same Divine sanitary prescience and the training and conversion of the Israelitish ex-slaves as a body into a nation of superlatively cleanly people?

This frequent washing and cleansing of garments at certain times and during particular physiological and semi-pathological bodily conditions was essentially and primarily hygienic, like the corresponding and often contemporaneous ablutions and washings of the body itself. Both that of the body and the

clothing were alike disinfecting and hygienic; in other words, health-preserving and disease preventing. Wash a garment and it acts hygienically by removing from its surface or interstices the offensive or morbific matter of whatever nature that may be; whether solid dust, perhaps microbic, gaseous, or fluid. It aided to keep the person's skin clean; and also in preventing others from contracting disease therefrom. At the same time these frequent cleansings of the body and its coverings are not only distinctly and purposely sanitary. We should never forget, and the Hebrews never did, that they are also ceremonial and typical in their aim and bearing. They are thus doubly educational; as they inculcate purity and cleanliness alike of body, soul, and all that concerns the human entity. They have not only an elevating and religious aim, but also inculcate physiological and hygienic truth and teaching of the deepest import. They are both physiologically, morally, and spiritually educational. The hygiene of the soul, body, and their environment is here combined and interwoven; and their interdependence shewn in these matters of every day life. In the case of leprosy of garments, when washing proved ineffectual to remove the disease, whatever the nature of that may have been; it was followed by removal of the leprous part and the destruction of this by fire. Or if this failed to stop the spread of the disease, the entire garment was treated like the portion, and burnt with fire: which agent effectually destroyed both the obnoxious garment and the disease germs lurking in its interstices. Moreover, as with all the hygienic laws of Moses, those regarding the clothing and its cleanliness were as compulsory on the Priests, Levites, and notables of the nation as among the people generally. The interdependence of the cleanliness of the body, its clothing, and isolation will be seen by consulting the columns of the tables following. The clothes-cleansing, so frequently ordered by the Hebrew laws for typical and hygienic purposes, was thus a material factor in the public provision of clothing for the Hebrew host. Indeed the clothing of the public and its hygienics are very important subjects from two points of view, namely, its warming properties and its disease propagating properties.

Jehovah, the leading Hebrew sanitarian teacher and provider had thus given Himself another difficult hygienic problem to solve; a problem meant for Hebrew instruction and ours. This was the provision of sufficient and suitable clothing for the Hebrew congregation under the most difficult circumstances. It was quite as necessary on medical and sanitary grounds to keep up to their normal standard the Hebrew comfort, heat, vigour, health, and life, by proper clothing, as it was to do this by judicious food and drink. These frequent cleansings of the

clothing it matters not, for our present purpose, whether we regard them as ceremonial or sanitary; as both necessarily cause a considerable wear and tear of the clothing submitted to them; a factor which must not be forgotten in the important question of renewal and supply.

Clothing is frequently mentioned in the Holy Scriptures, and especially in the Mosaic code; in its social, hygienic, and pathological aspects: about as frequently in similar connection as it is in our own modern sanitary measures and text books. Indeed, the frequency of these allusions by the Divine Hygeist shews the important part which clothing plays in His eyes, not only in preventive but in curative hygiene; as well as in the retention of body heat. And, moreover, proves that in this matter also, as in many others, the Holy Scriptures are pioneers in sanitary science and practice; and that the care taken regarding our clothing at the present day, both during health and in disease, is wise and was long ago anticipated and forestalled by the Mosaic sanitary code. And conclusively demonstrates that the ancient law shewed that the "modus operandi" of clothing in preventing and in causing disease, especially of the infectious and contagious type was both fully understood and most skilfully legislated for even in that early age.

The basis of all clothing is necessarily the material. Of this the different kinds mentioned in Holy Writ, as employed in different periods, circumstances, conditions, and ranks are the following:—

1. Leaves, as of the fig, sewed for aprons (Gen. iii. 7).
2. Skins, of which the Lord made coats (Gen. iii. 21); a high endorsement and early.
3. Woollen (Lev. xiii. 47).
4. Hair, camels, like John Baptist's raiment (Mat. iii. 4; Mark i. 6). Goats' hair for pillows (1 Sam. xix. 13); curtains (Ex. xxxvi. 14; Ex. xxvi. 7); spun by the women (Ex. xxxv. 26).
5. Linen (Lev. xiii. 47; xix. 19). The fine twined linen spoken of in the Pentateuch (Ex. xxvi. 1; xxxvi. 35-37) must be understood relatively. In the days of Moses the linen was comparatively course. This is shewn by the wrappings of mummies, even of kings. Their spinning and weaving implements were elementary. As these improved so did their products.
6. Silk (Prov. xxxi. 22; Ezek. xvi. 10-13). This was probably hemp misnamed.
7. Cotton was not known till after the captivity and is not mentioned in Holy Scripture.
8. Embroidery. The Egyptians and Hebrews were fond of and well skilled in this.

These materials were either spun (Ex. xxxv. 25; Mat. vi. 28); woven (Ex. xxviii. 32; xxxix. 27); or sewn (Gen. iii. 7; Job xvi. 15; Eccles iii. 7); either in their natural colours, which in the case of wool was mostly white; or dyed blue, purple, or scarlet (Ex. xxv. 4).

Thus manufactured, these materials were made into the following varieties of garments by the Jewish laity:—

1. Aprons; of leaves (Gen. iii. 7); or more elaborate and lasting material (Acts xix. 12).
2. Coats; of skins (Gen. iii. 21; Dan. iii. 21-27; Mat. x. 10; Mark vi. 9; Luke iii. 11; Acts ix. 39): of many colours (Gen. xxxvii. 3); of mail (1 Sam. ii. 38); without seam (John xix. 23).
3. Veils; as that of Rebecca (Gen. xxiv. 65); of Tamar (Gen. xxxviii. 14); Moses (Ex. xxxiv. 33).
4. Raiment; goodly of Esau (Gen. xxvii. 15); of Rebecca (Gen. xxiv. 53; see also James ii. 2).
5. Cloak (Mat. v. 40; 2 Tim. iv. 13).
6. Mantle; as of Jael (Judg. iv. 18); Elijah and Elisha (1 Kings xix. 13; Ezra ix. 3; Job i. 20).
7. Girdles; as David's (1 Sam. xviii. 4); leather of Elijah (2 Kings i. 8).
8. Bonnets; linen (Ezek. xliv. 18; Is. iii. 20).

This list increased and dress became more elaborate and costly after the settlement in Canaan, and the Hebrews became more worldly and irreligious. In Is. iii. 18 we find a list of dresses and ornaments used by the Israelitish laity, especially the women "walking with stretched necks, mincing as they go and with tinkling feet" (Is. iii. 16). It is difficult to identify what these were except in the light of our increased modern knowledge of Eastern customs and dress. The list includes tinkling feet ornaments, cauls, moonlike tires, chains, bracelets, mufflers, girdles, stomachers, leg ornaments, head-bands, tablets, bonnets, rings, earrings, nose jewels, changeable suits of apparel, mantles, crisping pins, veils, hoods, wimples, glasses, fine linen." The clothing of men and women was somewhat different. For men and women to wear each other's clothing was punitive (Deut. xxii. 5) to prevent immorality.

In addition to their ordinary or ex-official dress the High Priest, Priests, and doubtless also the Levites had special or holy garments, holy clothing (Lev. xvi. 32; Lev. vi. 10), when on duty in the Tabernacle. The High Priest's robes were especially rich and beautiful, as befitted their splendid ceremonial and were made by the "wise hearted filled with wisdom" (Ex. xxviii. 3).

1. Coat, the holy linen (Lev. xvi. 4), broidered (Ex. xxviii. 4; Lev. viii. 7), of fine twined linen (Ex. xxviii. 39);

for Aaron and his sons (Ex. xxviii. 40; xxviii. 2; xxxi. 10; Lev. xvi. 4; Numb. xx. 26).

2. Ephod (Ex. xxviii. 4). This has been found represented in ancient Egyptian paintings as a close vest reaching from under the shoulders nearly to the knees, fastened around with the girdle. It was made of fine twined linen, gold, blue, purple and scarlet, with cunning work (Ex. xxviii. 6); with its needle-embroidered girdle of the same material (Ex. xxviii. 8); and its two engraved onyx stones having the names of the twelve tribes whom the High Priest represented.
3. Robe of the Ephod (Ex. xxviii. 4; xxxi.), worn by the High Priest. This was all wool, blue, and woven without seam: with a hem of blue, purple and scarlet pomegranates and bells of gold. This was worn next and under the ephod.
4. Girdle of the Ephod (Ex. xxvii. 28; Lev. viii. 7) of fine twined linen (Ex. xxxix. 29) and needlework (Ex. xxviii. 39) for Aaron and his sons (Ex. xxviii. 40).
5. Bonnets for Aaron and his sons (Ex. xxviii. 40).
6. Breeches of linen for Aaron and his sons (Ex. xxviii. 42).
7. Mitre (Ex. xxviii. 4). This was a turban or bonnet (Ex. xxviii. 40) of fine linen (Ex. xxviii. 39), with a gold plate, on which was engraved "Holiness to the Lord" (Ex. xxviii. 37) on blue lace, on its forefront.
8. Breastplate of Judgment (Ex. xxviii. 4), worn when the High Priest obtained oracular decisions from God. This was made with cunning work, after the method of the ephod, of gold, blue, purple, scarlet, and fine-twined linen; with twelve precious stones in four rows on which were engraved the names of the twelve tribes; and two wreathen gold chains and rings, by which it was bound to the ephod; and, lastly, the mysterious Urim and Thummin over Aaron's heart (Ex. xxviii. 30).

The holy garments were *a*, the holy linen coat; *b*, the linen breeches; *c*, the linen girdle; and *d*, the linen mitre (Lev. xvi. 4). The upper garments of the High Priest were superimposed thus on Aaron (Lev. viii. 6) and on Aaron's sons (Lev. viii. 13).

1. The Coat.
2. „ Girdle.
3. „ Robe.
4. „ Ephod.
5. Girdle of the Ephod.

6. Breastplate with Urim and Thummim.
7. Mitre.
8. Golden Plate or Holy Crown.

The following list of garments and accessories worn in Palestine now, shews that the Hebrew dress has grown in variety ever since the days of Isaiah* :—

1. Kŭmis, or inner shirt of cotton, linen, or silk. Those of the Bedawin are long, loose, of strong cotton cloth, and the most important item in their wardrobe.
2. Libas, inner drawers of cotton cloth.
3. Shintian, drawers, very full.
4. Sherwal, very large, loose pantaloons.
5. Dikky, a cord or sash for gathering and tying the pantaloons round the waist.
6. Suderiyeh, an inner, sleeveless waistcoat, buttoned to the neck.
7. Mintiau, an inner jacket worn over the suderiyeh, overlapping in front, with pockets for purse, handkerchief, &c.
8. Gumbaz or Kŭftan, a long open gown of cotton or silk, overlapping in front, girded tightly above the loins by the Zŭnnar.
9. Zŭnnar, girdle of leather, camel's hair, cotton, silk, or woollen shawls.
10. Sŭlta, an outer jacket worn over the Gŭmbaz.
11. Kŭbrau, a stout, heavy jacket, with open sleeves, fastened in at shoulder by buttons.
12. Jibbeh, Jûkh, Benish, a long, loose robe or mantle with short sleeves, and very full; used in full dress. It was this that Joseph left in Potipher's wife's hands (Gen. xxxix. 12). The mantle that fell from Elijah and was taken up by Elisha was probably this. So it was the Jibbeh that Christ laid aside when He washed the Disciples' feet (John iii. 4); and the cloak spoken of in Mat. v. 40.
13. 'Aba, 'Abaiyeh, Meshleh, a strong coarse cloak of various forms and materials. It is often short and richly ornamented with gold and silver thread, interwoven with the cloth. The most common are made of black sackcloth of goat or camel's hair, large enough for the owner to wrap himself in to sleep. It was probably with this that Shem and Japeth covered their father (Gen. ix. 23).
14. Bûrnûs, a long, loose cloak of white wool, with a hood to cover the head. It is sometimes called Mŭgrabin.

The present Hebrew head-dress consists of :—

* Thomson's "Land and the Book."

15. Arŭkiyeh or Takiyeh, a cotton cap fitting closely to the head, shaven or not. If shaven a soft, felt hat is often worn under it.
16. Tarbush or Fez, a thick, red, felt cap.
17. Turban, a shawl of wool, silk or cotton wound round the Tarbush.

The coverings for the feet consist of:—

18. Jerabat or Kalsat, socks or stockings in great variety.
19. Kalshin, inner slippers of soft black or yellow leather.
20. Surmaiyeh, shoes, usually red morocco (Ex. iii. 5; Deut. xxix. 5).
21. Bubûje, a kind of half-slipper, partly answering to the ancient sandal, not now used.
22. Jezmeh, stout, clumsy boots of red morocco.

These modern developments of Hebrew dress are only of indirect Biblical interest.

Our chief interest in Bible clothing lies in that of the Hebrews of the Wanderings, especially as to the nature and source of supply, its quantity, quality, and kind. In Egypt they were where clothing could be purchased. So also in Judea whither they were bent. In the Desert, where Jehovah had led them, they had no such facilities. It was not a cloth or garment producing region, and had no manufacturing and productive cities or villages. Moreover, they were surrounded by hostile tribes, who hated, feared, and fought them, and with whom they were forbidden to hold intercourse (Ex. xxiii. 32). Jehovah had thus given Himself another hard hygienic task to solve; namely, to provide ample and suitable clothing for over two millions of people for a space of forty years, in a region which did not produce it. How did He accomplish the task? He evidently did this well. For there is this noticeable and pleasant feature in connection with the story of the Wanderings The Hebrews grumbled about their food, water supply, length of the journey, and many other items in their life and environment. But we read of no discontent about their clothing. This shews that what He provided did not displease them, as many other things did. They were evidently content therewith, and with the catering of their Divine provider.

From the Pentateuch we learn that the usual *material* of their clothing was skins (cattle, goat, sheep; Numb. xxxi. 20); hair (goat; Numb. xxxi. 20; Ex. xxvi. 7); wool (sheep, lamb; Ezek. xxxiv. 3); linen. Skins no doubt formed the chief clothing of the poorer class, necessarily the majority. They wandered in sheep skins (Heb. xi. 37); and were commanded to purify their raiment made of skins (Numb. xxxi. 20). Skin clothing was Divinely endorsed (Gen. iii. 21). Woollen cloth-

ing ranked next. The princes, captains, and notables possibly had linen: as had the High Priest, Priests, and Levites, by special Divine command (Exod. xxviii.). Woollen clothing was the best for that region, because the best absorbent of perspiration, and from possessing the highest power of retaining the body heat and excluding solar caloric. Linen, flax, and silk are less valuable in these respects. It was therefore with the most valuable hygienically that the Hebrews were most supplied.

The usual *colours* were, the natural hue of the hide, hair, or wool; also white, blue, purple, and scarlet. The white and colours were mostly used in the Tabernacle furnishings, curtains, and hangings, and in the duty clothing of the High Priest, Priests and Levites. From a Biblical standpoint those of the nation's dignitaries, its princes, elders, captains, &c., seems of small moment, as it is not mentioned. White was both typical and cleanly. At this period the taste for much and gaudy raiment, subsequently alluded to by Isaiah (iii. 16-53; xviii. 23) was evidently undeveloped to any great extent (Deut. xxii. 5). The shape of the Hebrew clothing is not much spoken of or legislated for except that of the Priesthood, which is minutely given. Evidently no distinction was made between that of different tribes. The Hebrew dress had evidently at the time of the Wanderings not assumed such variety in type and texture as now. Doubtless the leading men wore more costly and elaborate raiment than the common people, who formed the majority, and were mostly so poor as only to wear skins or coarse hair or woollen garments. The female dress corresponded to that of the men; being loose and flowing. In the Desert days it was doubtless simple; but later on took greater variety and became more complicated and mysterious; against which the prophet of that day declaims (Is. iii. 18-23); as it was adorned with an endless variety of jewels and ornamental appendages. In Jacob's time maids had special habits; married women others; and widows others. Honest and dishonest had each their special forms of dress. No doubt all this also prevailed during the Wanderings. The shape and kind of garments used by the laity were probably most of those given in the Biblical list; according to the wealth and rank of the wearer. The poor predominated; and they had largely returned to the nomadic shepherd life of their patriarchal ancestors: and the greater number would wear skins: others woollen, hair, and linen garments, that required more skilful shaping.

How were these provided for a host of over two millions; not all soldiers of pretty uniform height; but men, women, and children of various sizes and both sexes. Not all of one rank,

or of one pursuit, or wealth; but nobles and shepherds, Priests, Levites, and laymen of many different grades?

1. The early and primary supply of clothing. When the Israelites left Egypt they had their own clothing; no doubt enough for the time, even with the majority of these poor and scantily clad slaves. This was materially increased by Divine interposition and forethought. Jehovah so frightened the Egyptians by the accumulative lesson of the ten plagues, especially by the last, the death of the firstborn, of the Egyptians alone and their flocks and herds, while the Hebrews and their cattle (Ex. xii. 29) escaped; that the former "entreated them to be gone" (Ex. xii. 32). Being "afraid of them" they were glad at their departing and pleased to be rid of them (Ps. cv. 37). But underneath this dread there lurked an undercurrent of feeling, a desire for protection, and the aid of the Hebrews to get their God to exercise His clemency and cease His increasingly awful plagues. God "gave the people favour in the sight of the Egyptians" (Ex. xii. 36); so that, though driven out of Egypt with a strong hand (Ex. vi. 1), as prophesied four hundred years before, they came out "with great substance" (Gen. xvi. 14); for the terrified Egyptians "lent" or granted the Hebrews whatever they "asked" or borrowed (Ex. xii. 35). These donations included *raiment* as well as gold and silver jewels and such things as they required (Ex. xii. 36). "They borrowed of the Egyptians raiment" (Ex. iii. 22; xii. 35). The Israelites did not therefore go away empty: but were well provided for the journey. So that the 600,000 adult males, at least as many females with their Priests, Levites, and the mixed multitude of Egyptians and their own children and those of mixed marriages (Lev. xxiv. 10-11); making in all over two millions of souls, were one and all well and fully clad (Ex. iii. 22). The Lord thus brought His hosts out of Egypt by their armies (Ex. xii. 41; xxii. 51); leisurely, systematically; not only with flocks and herds and very much cattle (Ex. xii. 38); and other riches (Ex. xii. 35), but with plenty and doubtless a superabundance of raiment (Ex. xii. 35) in the Desert, where no such supply awaited them.

That the clothing and material thus thrust upon them was very great and costly may be inferred by the material employed

in the adornment of the Tabernacle, and for the Priestly clothing: a structure not anticipated by the people when they left Egypt, and therefore unprovided for at least by them, though it doubtless was by Divine prescience, like the "holy" jewels, the gold and silver ornaments and furnishings of the Tabernacle and Priestly vestments.

TABLE XXXIII

Curtains and Hangings of the Hebrew Tabernacle

Text	Curtains or Hangings	No.	Dimensions of each		Total Dimensions		Material	Total Material in English Measure
			Length	Breadth	Length	Breadth		
Ex. xxvi.	Curtains for the Tabernacle	10	28	4	280	4	Fine twined linen	Length 170 yards width 2·4 yards
,,	ditto to cover the tent	11	30	4	330	4	Cloth of goats hair	do. 200 do. do. do.
Ex. xxvii.	Court of Tabernacle Hangings south side	1	100	5			Fine twined linen	
,,	,, north ,,	1	100	,,	300	5	,,	
,,	,, west ,,	1	50	,,			,,	
,,	,, east ,,	1	50	,,			,,	do. 213 do. do. 3 yds
,,	,, gate side hanging	1	15	5			,,	
,,	,, gate side hanging	1	15	,,	50	5	,,	
,,	,, gate	1	20	,,			,,	
A cubit is	here reckoned at 1·824	feet or	1 foot	9·888	inches			

It was not till they had arrived at Sinai, *i.e.*, about a year after leaving Goshen, that Moses was commanded to construct the Tabernacle and initiate a new ritual. The Tabernacle included an expenditure of linen, hair, and other woven and spun material, in considerable quantity, which they could not purchase or make in the Desert; and the need for which was instant. The value of the gold and silver employed for the ornamentation and construction of the Tabernacle has been reckoned at £200,000. To this the gifts of the Egyptians at the Exodus no doubt contributed largely. To it we must add the woven material employed, as shewn by the above table. This included 170 yards of fine twined linen 2·4 yards wide for the Tabernacle proper. This, again, was covered by hangings of goats-hair cloth 200 yards long and 2·4 yards wide. While the hangings for the Court required 213 yards of fine twined linen of 3 yards width. In addition to this there was the vail for the Holy Place (Ex. xxxvi. 35; 2 Chron. iii. 14) and the ceremonial garments for the High Priest, Priests, and Levites (Ex. xxviii.), requiring blue, purple, scarlet and fine twined linen. All this required a considerable quantity of costly material, previously unused and in the piece; no doubt brought from Egypt and "thrust' upon the Hebrews over and above other costly clothing and garment-material, received and stored by them, all unwitting of the Divine forethought for His anticipated holy purpose, only divulged at Sinai. Like the precious stones, gold, silver, brass, &c., likewise given by the terrified Egyptians in superabundance, this woven material was now handed over for Divine uses and Tabernacle service by the spiritually awakened Hebrews, who "brought free gifts evening and morning" until the supply was more than enough and Moses had to stop the spontaneous flow (Ex. xxxvi. 7). All this goes far to prove that in addition to plenty of ready made clothing, donated by the Egyptians to supplement what the Hebrews already had of their own when they left Egypt, they no doubt had perhaps much that was unmade and ready for future use; provided thus by Divine forethought and prescience for the earlier Desert days so soon to come. Doubtless they were never so well clad or provided for the future before.

This would doubtless have sufficed till the Hebrews entered Canaan, where they might procure more, either by purchase or capture from the idolatrous nations they were to supplant (Deut. xi. 23) or by their own industry. But the lack of faith at Kadesh, about two years after leaving Egypt, and its punishment, a prolongation of the Wanderings by 38 years, gave their Divine Leader a new sanitary load, to provide clothing for this numerous, unruly, and oft discontented host, and that under still more difficult conditions. By that time their frequent

changes of camp, in these earlier days must have considerably worn the first supply: and no renewal from that or any other source could be expected, as they were surrounded by enemies. From whence was new raiment to come? Jehovah, ever mighty, met this new emergency with His wonted wisdom, prescience, readiness, and vigour. Doubtless the most prudent of the congregation would meet the new conditions by taking unusual care of the raiment they possessed and wore, as the prospect of obtaining new was remote. But this would clearly not fully suffice. The final outcome we may glean from the remarks of Moses towards the end of the Forty Years Wanderings; when, in his review to the new generation of Hebrews, he said "thy raiment waxed not old upon thee, thy shoe is not waxen old upon thy foot" (Deut. vii. 4; xxix. 5; Neh. ix. 2): thus shewing that during their Desert education Jehovah not only preserved their bodies from sickness (Ex. xxiii. 25; Deut. vii. 15), but also cared for and miraculously preserved or renewed their belongings. And a prominent question is, what does the text now quoted really mean? No doubt the Creator could have preserved their clothing by direct physical interposition, and held Nature's physical law of wear and tear in abeyance. This may have been done to a certain extent. But it seems more probable that this is merely figurative speech, such as "pastures clothed with flocks (Ps. lxv. 13), and others with which the Bible abounds (Prov. xxvii. 26; Mat. vii. 15; Mat. vi. 30; Is. l. 3; Ps. xiii. 2-16; Ps. xxxii. 18); and that He provided clothing in a still more natural and better, but still equally providential and miraculous manner.

During the 38 later years of the Wanderings the clothing of the Hebrews to supplement that brought from Egypt, was doubtless derived in the following different ways:—

1. From the garments of dead Hebrews; no doubt kept to clothe the living. Nearly all of the 600,000 adults who left Egypt, but who murmured at Kadesh, died before the nation entered Canaan. Many women would suffer the same fate, and many perhaps for that fault. The survivors were not likely to destroy useful apparel. Three thousand were slain for idolatry (Ex. xxxii. 28): 14,700 died of plague for Korah's rebellion (Numb. xvi. 49); and 24,000 after wickedness with the Moabites (Numb. xxv. 9).
2. From the clothing of enemies slain in battle; the Amorites (Numb. xxi. 21); Og and the Bashanites (Numb. xxi. 35; Deut. iii. 7); Sihon and the Heshbonites (Deut. ii. 32); Midian (Numb. xxxi. 10), &c. The Hebrews were not permitted to hold intercourse or intermarry with other nations, in order to keep

them separate, unmixed, and free from idolatry. "Thou shalt make no covenant with them or with their gods lest they make thee sin against me" (Ex. xxiii. 33). This implies no social, religious, or commercial dealings; no barter, buying or selling of any kind; not even clothing. But it would not include spoil of battle, nor prevent the adoption of raiment, cattle, armour, houses, lands, &c. From the Midianites they obtained much booty, cattle, ornaments, and no doubt clothing, which had to be purified by washing with water before use (Numb. xxxi. 24); doubtless for combined typical and hygienic purposes. The clothing thus obtained was no doubt great.

3. If the Hebrew clothing was specially preserved physically at all this was most likely to have occurred with that of the High Priest, Priests, and Levites, and with the hangings, curtains, &c., of the Tabernacle under the special care of the Gershonites. That of the laity was doubtless preserved, kept up, and supplied in another miraculous but indirect way, namely by Divine supervision and increase of the flocks, whence it was derived. From these they could obtain skins, as of cattle and calves, sheep, and goats for the poorer adult Hebrews, doubtless the majority; lamb and kid skins for children; leather for sandals; wool and hair, as of the sheep and goat, to spin and weave into hair and woollen cloth and clothing for the better classes and for finer inner wear. These were not obtained from the sacrifices; for—

   1st. The animals ordained for sacrifice were not the chief wool-yielding ones, the sheep; but rams, bullocks, goats, &c.

   2nd. Neither the skin nor hair or wool of the animals offered were always, but only occasionally ordered to be preserved; but the reverse. Thus the *hide* and refuse of the bullock sacrificed at the consecration of the High Priest and Priests had to be burnt out of the camp (Lev. viii. 17); so also with the sacrifice for the High Priest and people's atonement (Lev. ix. 11; Lev. xvi. 28). So, too, with the sin-offering for individuals erring in ignorance (Lev. iv. 12); and the congregation (Lev. iv. 21); the skins, and of course the hair or wool had to be burnt, so with the skin of the Red Heifer of Purification (Numb. xix. 5). With the *burnt* offer-

ing, however, it was different, the Priest who offered it for any man had the skin (Lev. vii. 8). This sacrifice was a voluntary offering, made under a deep sense of general sinfulness, not for special guilt; and was no doubt oftenest made by the prosperous and the God-fearing.

These facts shew *first*, that the sacrifices in which the preservation of the skin was permitted and ordained, would supply a certain but variable number of skin-robes for clothing; as well as some of the coarser materials for weaving into cloth; *e.g.*, goats and rams hair, &c.: and *second*, that this could not be the sole or even the chief source of supply for textile fabrics, especially the finer ones.

4. The skins of animals killed for food would not furnish much towards clothing the Hebrews; as they, like most orientals of that day, did not consume much flesh, food, or slay many animals for this purpose. Manna sufficed them; and they had quails twice.

5. While in the earlier days of the Wanderings skins so obtained would supplement the Egyptian supply; later on another source, namely, their flocks and herds, would render them year by year more independent of outside aid. It is especially noticeable that the chief wool-bearing animal, and that which supplied the best textile material was never ordered for sacrifice; doubtless, perhaps, because meant to be otherwise utilized. That was the sheep. That the Hebrews had flocks and herds of their own in Goshen, was shewn by the murrain which affected no Hebrew stock (Ex. ix. 6); and by their first-born being spared, and none died on the occasion of the tenth plague (Ex. ix. 7). At the Exodus "much cattle" went with them; no doubt of Egyptian gift (Ex. xii. 38). In a few years their flocks and herds must have been very large, and able to bear the drain of sacrificial animals. The supply of wool for clothing from their sheep and lambs must have corresponded. In ordinary circumstances these animals are very prolific. And these were not only extraordinary circumstances, but the most favourable it is possible to conceive. Their flocks and herds, like themselves and all their property, and all that concerned the Hebrews, were supervised and blessed by their Divine Maker, Protector, and Leader. For just as God in former days blessed Jacob's cattle, sheep, and goats (Gen. xxx. 31-43); and for twenty years, for Jacob's sake, made Laban's

ewes and she-goats not cast their young (Gen. xxxi. 38); so did He now, and more emphatically, the flocks and herds of his posterity, Jehovah's chosen people. Just as the Hebrews had no barren women (Ex. xxiii. 26); and also no miscarriages (Ex. xxiii. 26); so with their domestic animals; Jehovah made them uniformly and miraculously prolific (Deut. vii. 14; Deut. v. 13); both the males and the females, for non-fecundity may be lacking on either side. Here both males and females were beneficially influenced in the required direction. This doubtless made the progeny, both human and otherwise, unusually strong and healthy. They were both long-lived and virile. The Hebrews, moreover, were kept from sickness by Divine interposition; "The Lord will take away from thee all sickness, and will put none of the evil diseases of Egypt upon thee (Deut. vii. 15). This of course did not include those diseases which the Hebrews brought upon themselves (Numb. xi. 33). But no doubt the boon was extended to their flocks and herds; which were kept strong and healthy, and were never decimated by disease, droughts or floods, but safeguarded mainly by the ordinary laws of hygiene, wisely decreed and strictly enforced, because these are as important and obligatory and punitive for the lower animals as for humanity. Under such conditions and in such a favourable environment, their sheep, goats, and cattle could not help increasing with marvellous rapidity. Nor are the records given of the offerings of the Princes at the dedication of the Tabernacle (Numb. vii.); and of the flocks and herds possessed by the Reubenites and Gadites at the end of the Wanderings, at all surprising (Numb. xxxii. 1). By this miraculous and God-ordained mode did Jehovah provide not only for sacrifice but also for raiment in abundance, and fast increasing pastoral wealth, especially among the most highly favoured, because least unruly tribes and most Godly and industrious. Possibly their cattle and sheep increased or decreased with the tribes. Thus did the Hebrews obtain skins for the poorer classes to wear for rough work; and wool and hair to spin and weave by warp and woof (Lev. xiii. 48-58) into textile fabrics for inner and better garments for the upper and wealthier classes, among this once more shepherd nation, than whom none were more competent to second Jehovah's efforts.

That the Hebrews of the Wanderings could and did manipulate the textile fabrics for clothing and otherwise, and that the allusions to their work in the history of their Desert life does not apply to a later date, is proved by their work for the erection of the Tabernacle at Sinai. It is significantly mentioned that the Children of Israel made all the work for the Tabernacle as the Lord commanded (Ex. xxxix. 42-3): not the foreigners or mixed multitude. That they, and especially the women, could and did *spin* in terms of the Biblical model housewife "who seeketh wool and flax" (Prov. xxxi. 13) is shewn by the narrative that "the wise and willing-hearted did spin (Ex. xxxv. 35). That they could and did *embroider* is shewn by Deut. xxii. 12, "make a fringe on thy vesture" and embroidered pomegranates (Ex. xxxix. 1). That they could and did *weave*, is shewn by Aholiab's educational mission among his fellow Hebrews, which included teaching them "to work the work of the weaver" (Ex. v. 35). They could evidently manufacture woven goods of wool and hair; and cut, sew, and shape these into appropriate garments. Frequent renewal of clothing was thus tantamount to its "waxing not old." Many of the Hebrews of the Exodus may have learnt the arts of sewing, spinning, and the more difficult one of weaving, when in Egypt. Others again from these, when the occasion and necessity arose in the Desert. The first and chief occasion happened during the construction of the Tabernacle, their first public erection as a free people. Then it was that Jehovah's care and help to promote His own special work and direction therefor, to further the great end and object of this their spiritual education and welfare, were specially manifested. For not only did He supply the material in abundance, but specially and miraculously endowed and filled with the spirit of God, Bezaleel and Aholiab, and doubtless others (Ex. xxxi. 9-11) with wisdom to "work in all manner of gold, silver, brass, wood, and cunning work of the more solid kind (Ex. xxxv. 33), but also in the arts of sewing, embroidering in purple, scarlet, and fine linen, and *weaving* (Ex. xxxv. 35). He, and perhaps others in a minor degree, were endowed with wisdom and knowledge (Ex. xxxi. 6), so that they could not only weave themselves, but teach it to others; as many as were required for Jehovah's special work; and were inclined to learn for their own or their fellow Israelites benefit. The superhuman knowledge of these men, "their wisdom, understanding, and knowledge in all manner of workmanship" (Ex. xxxv. 31) and their ability to devise cunning work to work in wood carving and any manner of cunning work (Ex. xxxv. 33), would also enable them to construct moveable looms. God put it into their heart that they might "teach" others (Ex. xxxv. 34) that which they

were "filled with wisdom of heart to work" (Ex. xxxv. 35). This included "any work of those that devise cunning work" (Ex. xxxv. 30-35) and was comprehensive. These men were universally endowed as all round mechanics; and after completing the Tabernacle work would no doubt continue their industry by making clothing for the host and instructing others to do the same. An interesting fact in early Hebrew history connected with the ornamentation of clothing is the law made after the punishment of the Sabbath breaker by stoning (Numb. xv. 32). The Hebrews generally were then ordered to make fringes or flowers "on the borders of their garments and on the fringe a riband of blue" to keep them in remembrance of God's commandment and shew that the Hebrews generally were regarded as Priests consecrated to God, and should not individually sin by forgetfulness (Ex. xix. 6; 1 Pet. ii. 5-9).

Thus the Divine Instructor of the Hebrews not only provided material in abundance for suitable clothing, by miraculous means, but also raised up and specially endowed men with mechanical genius, to teach His chosen people the most useful and especially the indispensable mechanical arts; and among these the invaluable one of garment manufacture. This apparently trivial matter, therefore, that of clothing, was thus employed to teach God's special people dependence on Him, self-reliance, and interdependence on each other. Necessity is the parent not only of invention but also of industry. And this matter of the clothing of the Hebrews in the Desert shews that the Jehovistic education of the nation was not only sacred in import and bearing, but also secular; public as well as private; mechanical as well as mental, moral, and spiritual; practical as well as theoretic; and not only these but also deep, wise, far-reaching and Divine. The God who brought forth His armies out of Egypt (Ex. vii. 4) likewise fed and clothed, protected, prospered, and tutored them in many kinds of knowledge, useful to them both, individually and as a self-reliant, independent nation, that would hold no intercourse with any other than God-fearing people. Like all else that happened to them in the Wilderness, all these incidents were ordained "that He might instruct them" (Deut. iv. 36) in His comprehensive and far-reaching scheme and by His multiple methods of national evolution. The tribes were commanded to "learn, keep and do" His laws (Deut. iv. 36). These included the sanitary as well as the social, moral, and spiritual laws; and the sanitary included those regarding clothing (Deut. iv. 40).

Jehovah fed and supplied the Hebrews miraculously with water. So He did with clothing. But as they had to gather and cook the food and fetch the water; so, while He provided the raw material for clothing, this necessary of life they had to

collect, spin, weave, and fashion for themselves. Raiment was not furnished for them ready made, after the Exodus and Egypt. Heaven helps those who help themselves.

Clothing was employed by Jehovah to inculcate public morality and sexual delicacy. A woman was forbidden to put on a man's garments, and a man a woman's. For either to disobey constituted "an abomination" (Deut. xxii. 5). Garments of divers sorts and mixed materials, *e.g.*, woollen and linen, were forbidden (Deut. xxii. 11; Lev. xix. 19): doubtless with reference to some idolatrous ceremonies, practises, or customs; and to keep the Hebrews a separate people; spiritually and otherwise.

CHAPTER XXIV

DWELLINGS, STREETS, COMMUNITIES

"That no plague come nigh thy dwelling" (Ps. xci. 10; Is. xxxii. 18; Job iv. 14).

The healthiest of all atmospheres and hygienic environments is the open air. But many things forbid us to live always there; while privacy, comfort, and climate impel families to dwell apart and under shelter of some kind, which forms the home and habitation. On the other hand, our social and commercial instincts incite us to mass together in communities, villages, towns, and cities. This double aggregation of human beings in limited areas necessarily increases by concentrating their emanations, and augments the sanitary dangers. So that the hygiene of the dwelling and the community are altogether distinct from the private; and become public. Hence must be in charge of public officials; and are important factors in human sanitation, requiring special study.

Tents, the simplest of dwellings, are useful for nomads, being cool in summer and hot climates, healthy because airy, and easily removed, but unsuitable for cold climates or seasons. Tent sanitation is easily attended to, and tent life very healthy.

Dwellings, houses of mud, wood, iron, brick, or stone are stationary, more solid habitations, better adapted than tents for cold climates or seasons; but more complex sanitarily, as their ventilation, lighting, heating, and cleanliness, &c., all, and, for obvious reasons, require greater attention.

Streets are the lanes left by common consent between rows of tents and houses massed into *communities*; and are necessarily apt to be more unsanitary than the open fields, for lack of sanitary care and cleanliness, both in themselves and in the bordering houses, especially if narrow, gloomy, and crooked, shutting out air and light and preventing full cleanliness. The sanitation of houses and communities is thus a matter of great public moment for human comfort, cleanliness, health, and happiness.

Many of the details of private hygiene cannot be so fully carried out in houses as in the open air or even tents. While the water and air supply, sewerage, and so forth in communi-

ties are not so completely under individual control; and thus apt to be less perfect. When several persons or families occupy one dwelling, and especially when many do, as in tenement houses, the difficulty in fully carrying out the rules of hygiene becomes correspondingly increased. So that without the greatest attention to the original construction of the building and its constant superintendence afterwards, it is impossible to keep its ventilation, sewerage, &c., so fully in order and so constantly at work as they ought to be. Hence the sites for dwellings should be most carefully chosen; and the buildings themselves scientifically constructed and well managed afterwards. The hygiene of the home is both of private and public interest, and the following are the chief conditions that modern science deems necessary to ensure a healthy dwelling:—

1st. A dry site, free from moisture and malaria.
2nd. A light and cheerful aspect.
3rd. Sufficient ventilation to carry off all impurities resulting from respiration, cooking, sewerage, and other causes; that is a good egress of impure and ingress of pure air, with freedom from draughts.
4th. Good sewerage, to remove at once and completely any refuse apt to taint the air.
5th. A good supply of pure water for drinking, house-cleaning, clothes washing, &c.
6th. Perfect cleanliness throughout.
7th. A construction, ensuring constant and perfect dryness of the foundation, walls, basement, roof, and water-pipes.
8th. Size large enough to prevent overcrowding.
9th. Warming by natural sun exposure, or artificial heating.

The fundamental object to be aimed at in house construction should everywhere be healthiness; and above all things, complete aerial purity. Comfort, convenience and beauty, too often regarded as matters of first are really of secondary importance. Still, there is no reason why the desire for these should not, but on the contrary every reason why it should be gratified as far as available after the main desiderata, inasmuch as the four are by no means incompatible. Beauty, convenience and comfort are all as attainable with as they are possible without perfect healthiness of house construction. It is worth especial notice that the diseases which arise from faulty dwellings are mainly or entirely those caused by impure air. The atmosphere of a building may be contaminated in various ways. For example, by malaria or impure vapours from an ill-chosen site; or by imperfect ventilation, which confines and condenses noxious and putrescent exhalations; or by inexcusable dirtiness of the house, its inmates or their clothing, owing either to

laziness or to a deficient water-supply. If an entire street, block, locality or city is thus circumstanced, matters are so much the worse, and the evil effect on health likely to be all the more widespread. The evil results of defective sanitation and benefits of the reverse are well illustrated by the health statistics of tenement houses. Thus, fully 54 per cent. of all the deaths in New York in 1881 were in tenement houses and crowded dwellings: and a large proportion of those cases could have been prevented or postponed, if the patients could have had wholesome food, fresh air, and cleanly rooms. On the other hand, in 3,000 tenement houses lately re-built or renovated, the result was that in six years the death-rate fell from 54 to 29 per 1,000; while the arrests for crimes underwent a corresponding diminution.

For the same reasons, not only our private dwellings, but especially our streets, villages, towns, and cities should be carefully planned in every particular on modern sanitary principles, to ensure proper ventilation and the complete removal of those foul vapours that emanate from our bodies, houses, sewers, and so forth. The larger the community the more the need for this; and the greater the difficulty in perfecting its sanitary arrangements. Narrow, crooked lanes and streets, which obviously interfere with ventilation, should be avoided. The sites of villages, towns and cities should also be carefully chosen, so as on the one hand to avoid malaria, damp, noxious vapours, hot or cold winds: and on the other hand to favour ventilation and a due supply of heat and light. The advantages of the wide and straight streets, and the ample house room of the judiciously planned cities of the modern type over those of the old system may be seen by contrasting the older parts of London, Paris, New York, and other cities with their newer portions. Or the arrangements of a modern city, like Philadelphia, Chicago, the new parts of Edinburgh, all built on the parallel principle, with Brussels, Boston, London, and other cities both of the old and new worlds; and especially those of semi-civilized Asiatic and African countries constructed on the old-fashioned irregular plan.

The healthiest houses and communities are invariably those in which these conditions have been all or nearly all attained. When they are unfulfilled wide-spread disease may sooner or later result. Unquestionably those great and fatal epidemics that afflicted the cities of the Old World during the Middle Ages, did not arise, as once thought, from such grand cosmical conditions as earthquakes, comets, mysteriously poisoned air, or special epidemic conditions, but from simpler, more familiar, and preventible *household* and *civic* causes; and were mainly due to overcrowding in faulty dwellings; ill-planned, narrow,

winding, unswept streets, a deficient water supply, uncleanliness of the person, clothes, and houses; deficient removal of excreta and refuse; careless gross habits, unnutritious food, and frequent famines. Fortunately, we are strangers to the extent and virulence of these old-time scourges. But many of the diseases that still afflict communities, especially the infectious and contagious ones, are unquestionably due to minor conditions of the same nature: and may arise for example from the house, town, or city being badly placed, the site being either too low to permit satisfactory ventilation and drainage, or situated on moist, malarious, new-made and thus unhealthy ground. Or it may spring from the streets being badly planned and imperfectly sewered, surface cleansed and so forth. The judicious selection of a locality; the proper construction and subsequent hygienic management of our houses and communities also, have one and all much to do with health-maintenance and life prolongation. Inattention to one, and especially to all, of these conditions may materially interfere with both health and life. Much sickness and many deaths arise from badly-situated, faultily constructed, and mis-arranged, as well as from mis-managed abodes and cities, as still shewn by the health of Eastern cities, especially Asiatic ones. It will therefore be clear that a knowledge of sanitary, civic, and household matters on the part of tenants, architects, builders and others is the first step towards preventing disasters of this kind and attaining a higher standard of individual and national health and longevity than now prevails. And it is well to bear in full view the fact that in all countries the great antagonistic influence against hygienic improvement and its beneficent results on health and life is, that mortality increases with density of the population, that is with crowding; and that all the sanitary science made with a view to cope against this, is barely able to do more than neutralize the evil effects. It will therefore be interesting to enquire what that wonderful health-guide, the Holy Scriptures, say regarding this department of public hygiene: and especially to find out if the Pentateuch and the details of the Hebrew camp give any information of import.

Biblical Hygiene of Cities, Houses, Streets, &c.

From a Biblical point of view the habitation in which most people pass by far the greater part of their lives and is their own special domain and sanctum, ought to have the best hygienic and sanitary environment, so that it may be holy (1 Tim. v. 4; Ex. xv. 13); just (Jer. l. 7); peaceful (Is. xxxii. 18); quiet (Is. xxxiii. 20); prosperous (Job viii. 6); and healthy (Ex. xv. 26; Lev. xiv. 34; Job. xxii. 18; xxi. 9). This embraces the whole hygiene of Man.

That the climate of Eden and its weather were, like all else Paradisaic during man and woman's first sinless estate, when they had not yet, like their false friend and tempter fallen, appears from the fact that they were naked and had no covering save that of purity and innocence. So that they possibly required no special dwelling: the grass-clad ground, shade of a bush, tree, rock, or cave, sufficed for their nightly shelter, comfort and protection from morbific influences. Caves have often been used as dwellings by Man, especially in times of danger; as by Lot and his daughters after the destruction of Sodom (Gen. xix. 31).

But after the Fall and as the race multiplied, private dwellings became necessary for climatic and social reasons. Probably the first of these were booths and tents for the nomads or wanderers (Gen. xiv. 20-22); and more substantial erections for "builders" or permanent settlers in communities. Houses became necessary for social and family reasons.

Tents are among the earliest abodes mentioned in Scripture. Jabal, son of Lamech, son of Cain, was the father of such as dwell in tents and have cattle, *i.e.*, were shepherds (Gen. iv. 20). Tents are often alluded to in Bible story; because those patriarchs, whose history it chiefly records, were essentially pastoral and nomadic. The tent or light, open, removable habitation was exactly what suited them, as they wandered to and fro from pasture. Thus we read of Noah's tent (Gen. ix. 21); Abraham's (Gen. xii. 8); Lot's (Gen. xiii. 12); the people's, shewing that tents were general (Gen. ix. 27); Sarah's (Gen. xviii. 9; xxiv. 67); Isaac's (Gen. xxvi. 17); Jacob's (Gen. xxxi. 25); Israel's (Ex. xxxiii. 8; Numb. xi. 10; 1 Sam. xiii. 2; Ps. lxxviii. 8); women's (Judg. v. 24); lepers (2 Kings vii. 8); maid servants (Gen. xxxi. 33). During the forty years' sojourn in the Desert the Hebrews reverted to tents, the dwellings of their forefathers; and probably long favoured them, possibly not only for their convenience but for their salubrity; for tent dwelling is very healthy when the climate suits; and the Hebrews, who were taught sanitation, would appreciate their hygienic utility and value. Thomson, from the text "to your tents, O Israel" (1 Chron. xii. 16) suggests from this and the constant reference to dwelling in tents long after the Hebrews had been settled in Judea, that this quotation may have been founded on fact. Even the population of settled towns now pitch tents in the country and in these spend their summers, as was probably customary then, the people of those days thus clinging tenaciously to ancient custom and Tabernacles; as the peasants of South Palestine still spend their summers to this day: neither they nor even farmers requiring houses in so mild a climate any more than did Isaac, likewise a tent dweller and soil tiller (Gen. xxvi. 12), who sowed in the land and received

in the same year an hundredfold. These refined Bible patriarchs, even in those early days, could accommodate themselves either to city or country life while tilling the soil and herding cattle.

Houses, for more substantial, fixed, and stable dwellings than tents, were in time built for more permanent settlers; made of mud for the poor; of wood, brick, or stone for the rich. These in Eastern countries and among the Hebrews of Palestine had flat roofs, made of earth, spread and so hardened as to be rain-proof; so that the inmates might resort thither; a parapet or battlement breast-high being added to prevent accidents: as commanded by the Mosaic law (Deut. xxii. 8). Can we doubt that this was a Divine sanitary provision, and meant to promote health by inciting to an open air life? The flat house-top of Palestine and other Eastern lands, modified to suit the warm climate, still is as it was, a most important hygienic agent. There the poor live much out of doors, either on these house-tops or in the shade of houses, cooled by trees, avenues, courts, open to every breeze and current of fresh air, by arrangements of passages to facilitate ventilation, with shuttered windows to admit cool breezes, palms to shade, and flowers to give odour. On the roof the modern Arabs still delight to go to eat, drink, and enjoy themselves in recreation, sleep coolly in the summer evenings, attend to their devotions (2 Sam. xi. 2), and worship both rightly, as Peter did at Joppa (Acts x. 9), and idolatrously (Zeph. i. 5); or to wail (Is. xv. 3) or for household purposes, as drying corn, figs, raisins, linen, &c.; or to make public proclamations (Mat. x. 27; Luke xii. 3). Most Oriental houses have no window, or only latticed ones looking into the street; but from the battlements they can look over and down to see what is going on in the street below. The more ephemeral habitations of the peasantry were and still are built of small stones and mud, easily washed away by rain, as the brush-thorn and cane roof is only covered with earth, which was not rain-proof if not constantly rolled or carefully plastered with tempered lime-mortar (Ezek. xiii. 10-16). The flat roof was made of beams, covered by short sticks, then by thickly matted thorn brush (bellan), over which was a coat of stiff mortar, then marl or earth. All this can be easily removed, which explains how the sick man was let down through the roof to be cured by Jesus (Mark ii. 1-12; Luke v. 18-26). The sides of these houses were made of cobble stones welded with untempered mortar loosely put on. The stronger, more stable houses were of cut stone or brick.

Along the Tigris valley, where the air is very sultry and dry, the houses have *cellars*. Damp and close cellars are unhealthy. These, however, are evidently dry and wholesome;

for here the inhabitants retreat during the hot day. But further West, in Palestine, where the air is moister, buildings are usually built on large vaults, which are used as lower dwelling apartments in winter. In Bible times some had both winter and summer houses (Amos iii. 15). It was in a winter house or in one of the inner apartments of his palace used as such, where Jehoiachim sat in the ninth month, with a fire before him on the hearth, when he cut up the roll containing Jeremiah's prophecies with his penknife and cast it into the fire. It is the lower apartments of an Eastern house which is the house; and the upper the ulliyeh or summer house. Or these may be on the same floor, the external and airy apartment being the summer, and the interior, sheltered room the winter abode. Entirely separate summer dwellings are rare. These Eastern house arrangements are obviously of a highly sanitary bearing.

Communities. As the human race multiplied they tended then as now to aggregate and mass into villages, towns, and cities. The human race thus divided into town dwellers (Gen. iv. 17-20) and nomads or wanderers (Gen. xiv. 20-22). Then arose the distinction between the temporary tent and the more substantial house. From a Biblical point of view, in such collections of tents or houses, all have a common interest. Their weal or woe is public; and the former all should strive to perfect. The Bible story of the rise and progress of communities is therefore worth brief survey from a sanitary aspect. The more permanent abode and the community embraced the elements of health or the very reverse, according to their construction and arrangement. Because these introduced certain potent sanitary dangers, by the tendency to over concentration of people, especially in crowded modern tenement houses and large cities.

As the inhabitants of encampments and permanent communities, like smaller tribes and families were often at variance in those early days; they were usually of three kinds; namely—

1. Unwalled villages.
2. Towns with citadels or towers for resort and defence.
3. "Fenced," that is having a wall with gates and towers (Lev. xxv. 29; Deut. ii. 3), round which, especially in peace, lay their undefended suburb for the surplus population. For safety, they were often built on a height, which contributed to health.

The Bible history gives many side lights regarding the development of communities and city building. The earliest description of a city, properly so called, is that of Sodom (Gen. xix. 1-22). But they are pointedly mentioned at a far earlier date. Before the Flood, which happened B.C. 3248,

we only read of one, namely Enoch, built by Cain in the land of Nod, to the eastward of Eden (Gen. iv. 17); and so named after his son. The outcast Cainites were evidently talented and pushing, for besides being the first city builders they were also the earliest musicians (Gen. iv. 22); workers in brass and iron (Gen. iv. 22); and dwellers in tents, *i.e.*, herdsmen (Gen. iv. 20). After the Flood and especially after the Dispersion, we hear oftener and of larger cities being built by the progeny of Noah and the new race, who re-peopled Earth: and particularly by Nimrod and his descendants, who founded Babel (Babylon) about B.C. 1500; Erech, Accad, Calneh, in the land of Shinar (Gen. x. 11). Asshur, a branch of the same stock, built Nineveh, B.C. 1250 (Rawlinson); Rehoboth, or city of streets, for its size and regularity, by the river; Calah, a century later; Resen, a great city. Hebron, in and near which Abram, Isaac, and Jacob spent much of their lives, was another ancient city built seven years before Zoan in Egypt (Numb. xiii. 22). Jerusalem, Ellasor, Salem, Samaria, Shechem, Bethlehem, Geron, Sidon, Gaza, Hebron, Sodom, Charran (Haran), Luz (Bethel), Elam, Shinar, Gomorrah, Admah, Zeboim, Zoar or Bela, Laish, are all Canaanitish cities mentioned in Scripture (Gen. xix. 1-22). Also Damascus, said to be the oldest city in the world. Ur of the Chaldees, from which Abraham originally came. Egypt was an early city builder, even before Abram's time (Gen. xii. 14-15; Numb. xiii. 22). Indeed architecture had even then attained to high perfection, as the mound and other excavations in Egypt, Babylonia, Assyria, &c., fully shew; and also that wonderful architectural masterpiece the great pyramid, built many years before Abram's time; erected not by Egyptians but by the conquering foreigners they hated; and indicating a wonderful knowledge of science and philosophy that in some respects almost outvies that of modern times, as it embodies advanced ideas, mainly in astronomy, meteorology, geography, chronology, history, and religion, but containing nothing idolatrous. Modern architects could not construct such buildings.

The Hebrews in patriarchal times were shepherds and tent-dwellers. During their 230 years' sojourn in Egypt they doubtless had houses. During the later oppression they were largely employed in building and fortifying the Egyptian treasure cities, Pithom (Abbasieh) and Raamses (Ex. i. 11). But their pastoral habits, innate and acquired, made it unlikely they should build, still less fortify cities of their own in Goshen (Gen. xlvi. 34; xlvii. 15-11); and this would doubtless have been forbidden: although at the same time the shrewd Hebrews of the better class could not fail to be educationally influenced in architecture by their Egyptian life and experience. At the

Exodus they reverted for the next forty years to moveable tents; till the Conquest of Canaan (Gen. xlvii. 3; Ex. xii. 7; Heb. xi. 9), where they captured not only the lands and vineyards but also the cities, and found ready made houses (Gen. x. 11, 9; xix. 1; xxiii. 10; xxxiv. 20; Numb. xi. 27; Deut. vi. 1-10), and thus had little need to develop new architectural talent. The "Canaanite who was in the land" before the advent of the Hebrews' great ancestor, Abraham, had already built communities, which had largely increased in size by the time of the Hebrew exit from Egypt.

After David's time, when the Hebrews had fairly settled, they became still more city dwellers, and architectural rather than pastoral people: tent dwellers during peace (2 Kings xiii. 5), but during war within walls. These Canaanitish cities were in many respect exactly what the Hebrews required. For they were walled, fortified, and usually built on hills, and therefore defensible as well as healthy places.

Streets are among the chief features of all communities, and are most important, not only from a social and commercial, but also from a sanitary point of view, inasmuch as they contribute largely by their nature, function, and condition to make a place healthy or unhealthy. Of these cities and streets of Canaan we may still judge by their remains; as we also may of the still more ancient ones of Egypt, Assyria, Syria, Babylonia, &c., by archæological excavations. But even Holy Scripture gives us little clue regarding their sanitary condition. Probably this was much as it is at the present day in Eastern communities, and at a very low ebb, advanced sanitary science and practice being unknown. Their buildings were often large and splendid and presumably healthy, and the streets wide and roomy; but no doubt each community had its poorer quarters, where this would be reversed, amid unhygienic surroundings. Streets are necessary in all communities. Hence it becomes a public duty to plan them for the general good; because on their construction and management depend largely the common salubrity. We may consistently take the modern as a type of the Old World, Eastern, and Judaic streets for our present purpose of contrast.

Thomson, giving Beirût as an example, shews that the cities of the Land of Promise and Possession, have exceedingly crooked narrow streets, with no side walks for foot passengers; streets so narrow that it is often impossible for the latter to pass, or only by creeping under when a loaded donkey or camel passes. Otherwise the individual would be run over or crushed, and their faces and clothes torn by the load. These sad sombre streets are only about eight feet wide, and the adjacent houses on each side about 60 feet high, with dead, unornamented stone

walls; deserted at night and silent. Factors like these do not indicate a high degree of sanitary safety, but the reverse. These streets and the condition into which they are allowed to be, form one great reason why epidemics have so often and still do spring up in the East, and spread so rapidly and fiercely as to attack or endanger the better tended cities of the West by acting as foci of disease.

But it is in connection with the Hebrew Exodus from Egypt and their subsequent Forty Years Wanderings that we derive our chief Biblical evidence on the present subject. Although the brief Bible history of the Genesis, multiplication and spread of Man over the globe during the first two thousand years, gives us a few hints of public sanitary importance concerning communities, the narrative suddenly changes, develops, and brings us new, important, and incontrovertible hygienic light. In the midst of Biblical, medical and sanitary silence and obscurity, new knowledge suddenly arises. This came through and was also recorded and transmitted through a small, obscure, despised, and demoralized nation of slaves, the Hebrews. But it came from Heaven and the Divinity Himself, specially for Man; and is therefore well worth study. It was imbedded in Hebrew history, and formed part of the Sinaitic and so-called Mosaic law, revealed by Jehovah for the guidance of the Hebrews of that day, through life. This law was not a crude, half-developed scheme, but complete, well devised, and far-seeing. And amongst this precious mass of new and effective hygienic laws which it comprised for the guidance both of the human body and soul, we find many hints and commands for the welfare of Hebrew or other communities, streets, and houses, that are of the utmost value and interest even now, not alone in Eastern but even in more enlightened Western lands. These are found in the hygiene of their tented city-community or camp; and form a complete scheme of community or public sanitation; the first ever given to the world; and that must be acknowledged by all who fully study it in its entirety to be still the best that has been or could be devised by any human being, even a medical man.

It is in the last four books of the Pentateuch that we find the chief Biblical attention directed to the sanitation of houses and cities. Here we find the information not scanty and incidental, but special, full, and intentionally imparted; and forming part, and that an important and prominent one, of the Mosaic code, in connection with the formation and conduct of the Hebrew camp in the Wilderness. In order to shew the priority and advanced nature of the Hebrew sanitation, it will be well to contrast this early or Divine sanitation with similar hygienic efforts of a later age, but secular; because the con-

trast here alluded to is instructive as tending to shew the precedence and depth of the ancient Biblical, as compared with medieval and even modern hygiene of communities, streets, and human habitations.

The occasional hints that secular history furnishes shew the slow progress of public hygiene among the nations, even the more advanced, powerful and leading ones; and is interesting as shewing that, besides illustrating the development of sanitation, hygiene was practically an unknown science and art, even till comparatively late in the present century: and that we can only discern in this study glimpses of the dawn of secular hygiene and sanitary effort.

In many of the oldest and most noted Eastern cities and places, whose name and fame have descended to modern times; such as Nineveh, Babylon, &c.; much space was wisely occupied by gardens. From a public hygienic point of view these were light, spacious, and salubrious, as furnishing city lungs and pure air like our modern parks and squares, for the inhabitants; although the size of the city was much increased thereby. Moreover, equally and similarly utilitarian were the open spaces left near the gates of towns and cities, which were, as they now are used for courts of assembly for the elders, judges, and kings, and for general resort by the citizens (Gen. xxiii. 10); and also for places of public exposure by way of punishment (Gen. xxiii. 10). These places were healthy and commendable because hygienically suggestive, and perhaps an index of the dawn of secular sanitary knowledge; although possibly meant far more for social and public convenience than for sanitation. Again, in most Oriental cities, then and now, while the streets are mostly very narrow, some of those, of Nineveh for example, must have been wide enough even for chariots to pass one another going in different directions. It also seems likely that the great concourse which resorted to Jerusalem at the feasts induced them to make their streets wider than those of other cities, and therefore more sanitary. Later on, Herod appears to have been a hygienic reformer; for he built in Antioch a *wide* street paved with *stone* and having covered *ways* on each side, apparently to protect the walkers from the sun's rays. Josephus also says that in building Cesarea Herod was careful to carry out the drainage effectually. The secular attempts to perfect the sanitation of Jerusalem in early days were shewn more by attention to its water supply, as shewn elsewhere (Chap. 22, Vol. 2). Then, as now, communities had doubtless their crowded and less sanitary poor quarters and streets, and their better class ones.

Contrast this slow and imperfect evolution of semi-hygienic effort for communities with the full and complete scheme with

which Jehovah gifted the Hebrews over 3,000 years ago, and some centuries before secular sanitary records begin, for their camp, community and nation (Chap. 17), the details of which one and all indicate how "perfect" the knowledge is through familiarity of its author, the Divinity, with every sanitary point, factor, requirement and remedy, small and great; and also which of them all were the most necessary and imperative in their case.

The moveable camp or tented city, the first community of the free Hebrews, was a model arrangement; and their's was or ought to have been an ideal sanitary life, which might have borne good fruit in a continuance of the perfect health in which they left Egypt, when there was not one feeble person in their midst (Ps. cv. 37): but for their own negligence and indifference and disobedience of God's sanitary and other commands, moral, social, and spiritual. This camp was an enlargement on those of the patriarchal days, only modelled anew after Jehovah's plan divulged at Sinai; and also guided by Him in its itinerary and choice of stations.

Jehovah had several objects in view in His new and original plan of public hygiene for the Hebrews of the Desert: thus—

1st. He desired to lead, land, and locate them in the country He had promised them.

2nd. He desired to educate them up; and out of the demoralizing ideas and customs begotten or learnt during their lengthy bondage in Egypt.

3rd. Above all He wished and worked to make and keep them sanitarily sound and healthy, in body, mind, morals and soul: a model nation in every respect; an ideal people, enjoying that standard of physiological health, without which all His labour in their behalf would be practically wasted.

In order to effect these beneficent objects He ordained that, among other laws and ordinances of a higher nature, the people and their camp should be and have a complete concrete and orderly hygienic environment, consisting mainly of:—

a Air, food and water, the three essentials of life, in abundance and purity, combined with cleanliness, shelter, rest, change, and exercise, and other factors necessary for perfect personal hygiene, and best adapted for their bodily and mental health.

b Such an arrangement of the tribes as contributed most to their safety and defence from hostile Arab and Canaanitish tribes, like the Amalekites, Moabites, &c.

c Such an arrangement of their different tribes and tents, lanes and streets, as, while contributing to free intercourse, traffic, pastoral duties, and religious obser-

vances, at the same time minimized the dangerous effects of overcrowding, in the shape of impure air, deficient light and sunshine, unclean habits and other agencies likely to induce serious and widespread disease. The low tents would not overtop so as to minimize sunshine, light, and air; nor would the streets and lanes be so narrow and tortuous as to interfere with ventilation, traffic, cleanliness, and health. Though Scripture says nothing, Moses, with Divine light and leading, and perhaps instruction, was sufficiently sanitarian to attend to due width and regularity of the camp, streets, and alleys, in accordance with the definitely arranged tribes and Tabernacles, &c.

d Such a route across the Desert as would be most healthy: and such a wise selection of a salubrious site for each re-encampment; no doubt on sloping or elevated ground, and where water and forage were best obtained.

e The Desert region, whence He led them, its water and climate were exceptionally healthy; a most important hygienic factor; for the time was not brief, but one of forty years; practically a lifetime.

f The Hebrew community being intended to be a model one, its hygiene was meant to be pattern likewise. Therefore cleanliness, the chief factor in all sanitation, was made its dominant point; and that not in body and in physical matters only, but in higher things, purity in soul, morals, and mind. Right thinking and conduct are prominent and important factors in promoting the hygiene, health, and welfare of all communities. This was a most essential aid to promote the following.

g Not only the Leaders, Priests, Levites, Princes and Public men who had to carry out the community hygiene; but also the laity; and not alone the men, but also the women and children were systematically taught the law, that of hygiene included. Thus Tabernacle and tent, street, lane, cattle pen, burying ground, and the whole of their belongings were kept clean and healthy; by each individual, young and old, contributing his mite to the sum of public sanitation and the general good.

h Such regulations regarding disease, the dead, &c., as tended materially to promote health.

k The enforcement of all this hygiene by Moses and his aids was preceded by the revelation of the code of

hygienic laws that guided them in their duties of learning, teaching, and obeying the precepts of public sanitation; a code new, original, advanced, practical, and efficacious.

Later on, in Judea, the ready-made Canaanitish communities and houses captured and occupied by the conquering Hebrews, possessed certain approved sanitary features, well adapted for the climate, though not perhaps made entirely for sanitary but more from social reasons. For example:—

1. A flat roof affording recreation; an open, pure, air life with sunshine and variety and sleep; with improved ventilation of the house below.
2. They were situated either on the sea-side, lake-shore, or built on sloping or high ground, for defensive purposes; but also effecting sanitary ends by affording pure breezes, dryness, light, coolness, and remoteness from the noxious emanations of swampy plains and valleys. Thomson says they are so still.

This was doubtless a fortunate and Divine prevision, especially as, we must not forget, in the East a whole family, parents, children, and servants usually sleep in the same room, and with slight, often no change of garments; as was doubtless the case in Bible times also. So that, although their houses and rooms were small and crowded, good, natural ventilation helped to lessen the atmospheric impurity and the resulting danger to health.

At the present day we have no such direct superhuman guidance and prevision to aid us in the selection of sites for dwellings and for communities beyond these invaluable Scriptural hints, to supplement our own individual common sense and cultivated experience. This migratory Hebrew community moved again and again for at least 50 times, but no change was made in the physical Sinaitic plan. Each tribe and family and tent re-pitched in the same relative spot as before; the site alone being new. Nor was the slightest change made in the camp routine, sacrificial, social, or educational, or pastoral: or in the camp laws, hygienic, moral, social, or spiritual; public or private. This designedly model community, therefore, still remains, as it was doubtless given to be, a pattern for the more stable and stationary cities, towns, and villages of the future, whether Jewish or Gentile. What modern sanitarian could devise a better? And is this not another and notable instance illustrating how frequently, wisely, and successfully Jehovah combines and inculcates several hygienic lessons, by one and the same ordinance; in this case by compulsory leading to voluntary obedience to Divine laws, made solely for the public weal and inculcating the two great lessons of the law of love

and the brotherhood of Man, as first laid down by Jehovah in the last six of the ten commandments (Ex. xx. 12-21); a law subsequently crystallized by Christ into "thou shalt love thy neighbour as thyself" (Lev. xix. 18; Mat. xix. 19; Mark xii. 31); and by Paul into "in lowliness of mind, each counting other better than himself; not looking each to his own things but also to the things of others" (Philip ii. 3-4). By the inculcation of His public medical hygiene for communities and thereby teaching disinterestedness and decrying selfishness Jehovah also intentionally taught His Hebrew scholars some of the fundamental facts of the higher, that is social, moral, and spiritual hygiene of public life and communities.

Clearly, the public hygiene of communities, streets, dwellings, &c., is not therefore a modern or Nineteenth Century conception; but as old as the days of Moses; when the elaborate and fully developed scheme of Jehovah was bequeathed to the world as part of the Sinaitic code, that marvellous gift that has done and is doing so much to mould the destinies of men and nations and to raise the race from the degradation and sin slavery into which they placed themselves and from which they could never of themselves emerge. This pioneer plan of Jehovah's for the public sanitation of the Hebrew camp and congregation, although over three thousand years old, not only antedates and far outvies secular efforts in the same direction, but still remains in some respects a model for us to imitate and in other respects for us to improve upon as new environments are encountered, or fresh hygienic facilities arise. And the sanitarian would err grievously who would aver that, though ancient, God's plan is antiquated or can ever become so any more than Himself: or that it is obsolete and inapplicable to any community at the present day under similar circumstances: or that it is not in some respects safer and better than our modern plans, which largely aim at time-saving only: or that it is worthless because Biblical: or chimerical because found in a non-professional religious book: but on the contrary that it is eminently practical, perennial, a model for all time; "perfect," like all else that Jehovah does: and only furnishes another instance of the "depth of the riches both of the *wisdom* and the *knowledge* of God" in sanitary as in all other matters, and His educational beneficence and forethought, both for the Hebrews and the human race.

CHAPTER XXV

PUBLIC CLEANLINESS

"Clean ourselves from all filthiness" (2 Cor. vii. 1; Is. i. 16; 2 Kings v. 13).

In previous chapters the great importance of individuals having always not only clean bodies but also clean food, water, air, clothing, houses, personal belongings, and general environment, has been pointed out: and also what the Holy Scriptures say regarding these subjects. The public cleanliness now in question, namely, the public aspects of cleanliness, a comparatively recent lay study, although minutely taught in the Pentateuch, is a matter altogether beyond private individual reach, and one which some chosen representative of the people alone, acting for all, can deal with and legislate for effectively. When people mass into communities they can no longer do as they individually choose, and lay their refuse, whether of houses, shops, factories, &c., where, when, and how they please. This must be regulated for them. So, too, with the cleanliness of the streets, public buildings, and other matters of equal importance. All this implies constant attention to the cleanliness and purification of highways, sewers, latrines, burial grounds, parks, public buildings, markets, schools, water supply, baths, &c., &c. Selected and trained municipal and government officials and other recognized authorities here step in and act for the public regarding communal cleanliness. If this important sanitary matter were neglected danger might arise towards every individual near; of discomfort, disease, and perhaps death; which might radiate and thus involve thousands, perhaps endanger an entire community or people. For private and public sanitation are very closely intertwined; and so true is it that public hygiene is only the sum total of private sanitation. The smaller the number of private insanitary factors in a community the smaller likewise are the public ones; and the greater the one so much the greater are the other. And the harder or the easier the task to combat them. Let the public cleanliness of our streets, houses, abbatoirs, lavatories, factories, &c., be carefully attended to, and the cleaner necessarily are our food, water, air, clothing, houses, furniture, &c.,

likely to be. If neglected the insanitary danger in all of these points increases correspondingly with their number. This implies and includes danger to or assurance of comfort, health, strength, happiness, freedom from disease, diminished risk to life, and likelihood of a longer existence to the many.

As the noxious gases and vapours of a dwelling or community are removed and dispersed by ventilation; so cleanliness is the method by which unclean water, semi-solid or solid refuse are carried off. The latter have various sources: thus—

a In human excreta; the solid, semi-fluid, and liquid matters which are being continually thrown off by every human skin, lungs, kidneys, and bowels.

b Those which are constantly originating in the ordinary processes of daily life, including dust, debris, and solid waste from food, furniture, clothing, &c.

c The refuse of street traffic, trades, factories, commerce, markets, &c.

The accumulation from these is not only unsightly and offensive to smell, but also unsanitary; inasmuch as it may decompose, become converted into objectionable fluids, semi-fluids, emit foul vapours and gases, and perhaps breed microscopic parasites; one and all of which may poison either the air we breathe, the water we drink, food we eat, or our clothing, bedding, household belongings, and thereby get into the blood by various channels, so as to generate deadly and wide-spread disease. The reduction and speedy removal of public refuse is thus a matter of importance both to individuals and communities. To the insufficient or non-removal in former times was often due the great prevalence of sickness and many far-spreading and deadly epidemics. And to this also we doubtless owe many of the ailments still common in uncleanly localities, dirty communities, even those of so-called civilized countries; while those still frequent in the highly insanitary communities of semi-civilized or altogether untaught tribes of many countries, especially heathen ones, are traceable to the same source. The judicious disposal of the sewage of a house or locality, town, or city thus forms one of the most important problems of sanitary science and engineering skill; and is every year and everywhere a matter of health or sickness life or death to millions; and a most important factor in increasing or decreasing the sick and death rates; and item in affecting the general welfare, happiness and even progress of communities.

In this busy age, especially in thickly peopled and large widely-spread centres, where every man cannot do his own work and be his own servant, even if he would; we require some readier method by which refuse can be carried away than the personal conveyance of primitive times, like the Mosaic era.

But now the great difficulty is to select for different cases the best system out of many available ones. Our modern plans depend mainly on the size of the place, its capabilities, site, surroundings, and the habits and enlightenment of the people and public authorities over them. The two chief modes at present in vogue for the removal of refuse and sewage, are the *wet* and the *dry*. Removal by the former, that is by water, and the aid of sewers, drains, and pipes; as followed in England and in many of the large cities of Europe and America; is, when carefully managed, the readiest, quickest, cleanest, often the least expensive; and for large communities one of the best, where a copious supply of water for sluicing is procurable either from rain, slops, sinks, clothes-washing, lavatories, baths, and so on. If the refuse can be at once diverted into a river, stream, or running water of some sort, and so carried far from mankind, so much the better. The dangers, however, of this, the wet system, are manifold. One of the most frequent and important is, contamination of the adjacent ground, wells, and water by leakage through faulty or broken pipes. Again, during the night, when the flushing fluid is at an ebb, the inside of the sewer-pipe is apt to become coated with fœcal slime, which putrefies, ferments, and breeds fungous vegetations, foul emanations, and effluvia, which again are apt to escape into the streets and houses by leaky pipes and traps in the form of dangerous disease-producing sewer gas, a fertile source of typhoid, diphtheria, erysipelas, and no doubt other ailments. Still another disadvantage is, that our bays and rivers are apt to become badly polluted thus; as seen in the Bay of Naples and Harbour of Marseilles; and until within a few years back in the River Thames: unless the refuse is carried well below the city, as has been done regarding London. Another great drawback to this system is, that by thus sluicing away our manure we practically throw money away and have to purchase guano and other valuable fertilizers at great expense. If, on the other hand, the refuse is used to irrigate land, as it has been near Berlin and elsewhere, it may prove more or less a failure by over-dosing the soil, perhaps forming noxious swamps only fit to grow rank worthless grass.

Taken as a whole the disadvantages of the sewage system may be thus summarized:—

1. It is antagonistic to Nature to mix too much water with sewage and too little earth.
2. It is apt to cause much direct disease.
3. It is apt to disseminate disease.
4. It is apt to foul rivers, streams, wells, &c.; making really pure water rare.
5. Financially it is expensive.

6. It is apt to incite to concentration and overcrowding.

A modification of this "combined" plan, which thus treats all varieties of sewage alike and carries them off in the same conduit, is the "separate" system, in which there are two sets of sewers, one for water refuse and the other for more solid fœcal matters. The serious objection to this is that the two sets of sewer pipes doubles the danger of sewer gas.

The *dry* method on the other hand is useful where removal by the above or wet plan is impossible, either from a deficient supply of water, want of a suitable fall, or again in severe climates, like those of Canada, Northern Russia, Sweden, and which freezes the water for months during their long winter. In those circumstances the refuse must either accumulate or be periodically removed. To obviate this emergency the latter of these two plans is that followed in some large communities. When this *dry* mode is employed the receptacles should be special; the refuse first thoroughly mixed with de-odorants, disinfectants, and anti-putrescents; and then quickly removed when the time for this arrives.

An effective, self-regulating system of sewerage for households and manufacturing waste consists in a modification of both the wet and the dry plans. This appears better than either when it is practicable. It involves two distinct sets of sewers, one for drainage of inoffensive fluids or such as are so nearly inoccuous as to be easily made entirely so, into an adjacent stream: the other an excretal sewer for fluids and matters which are sanitarily dangerous, yet valuable as manures; and which are first filtered to get rid of their watery part before utilization. The surplus fluid and latent water are then expelled by heat in a partial vacuum, which permits no smell to escape and leaves the fœcal matter as a fine powder, of great commercial value, as well, if not better, adapted for manure as guano, bone-dust, and artificial fertilizers far less costly, and that would be otherwise either wasted, or, still worse, used so as to produce discomfort and detriment elsewhere, in the shape of nauseous smells, sickly sights, and deadly diseases.

It would clearly be impossible for every village, town, and city to follow exactly the same method. Different sizes, situations, kind of community, &c., may require different methods. The complicating factors are so numerous that much care, great discrimination and skill, have to be employed in selection. Our decision as to the best mode to pursue must be guided by the varying circumstances of each case. Obviously a different plan or modification will be required as the city or town is residential, manufacturing, situated on level ground or hilly country; built on or near the sea, a lake, river, or stream; or in a plain far

from water supply; or in a region where, like Canada, Minnesota, Northern Europe, and sub-Arctic Asia, the water is frozen and therefore useless for many months of the year; and other plans must therefore be devised for temporary or permanent use. Judgment is necessary for the selection of the best. In all, especially in large places, the water system of sewage is thus preferable on the whole; the debris being carried into rivers, large lakes, or the sea, to be thus dispersed, diluted, and so rendered innocuous. Where water drainage is unattainable, the dry method may be followed and the material utilized or not as manure. But this obviously requires careful management, particularly in large communities; and should be under strict official supervision, as it necessitates speedy and periodic removal, concealment, or, better still, admixture with ashes, charcoal, quicklime, special chemicals, such as Mercuric Bichloride, Iodine, Macdougal's or Calvert's Powder, Creosote, Carbolic Acid, Condy's Fluid, Chloride of Zinc, Alum, Lime, Iron, Alumina, Nitrite of Lead, and other deodorants, disinfectants, and anti-putrescents mentioned elsewhere. These chemicals alter and convert them into other forms of matter less dangerous to health and life. Cremation and also electrical decomposition have also been tried. One of the very best of all the disinfectants and decomposers is common earth, where a fully supply of this, and the subsequent speedy removal of the somewhat bulky mixture can be accomplished. Nature's own method, the earth system, is absolutely perfect theoretically; but yet practically impossible in large towns owing to its bulkiness, as it requires for a population of 100,000 over 200 tons of earth per day, an amount not easy to supply and worse to carry away. So that on the whole the water-carriage system is the best; being convenient, healthy, and economical. Soils of the most different kinds are or may be made capable of effecting the purification of sewage. One acre is necessary for every 500 persons, if used to fertilize land. This amount does not make it a nuisance or injurious to health of neighbouring residents. And may be made pecuniarily profitable and utilized agriculturally; fœcal matter, &c., being thus carried away at once and easily by gravitation and water, and returned to its proper destination, the soil, where it does not affect the produce compared with other vegetables, their consumption, or sale: and meat so fed is not less agreeable or wholesome than if obtained in the ordinary way. Whereas if sent into a river or the sea it is wasteful of manure and apt to be sanitarily pernicious indirectly. It will be evident that the difficulty of providing a sufficient supply of earth, added to the bulkiness of the system, the ancient Hebrew plan of earth disinfection is of limited availability in large modern communities; although no

better could be devised for disinfecting and decomposing sewage in small bulk; or even in larger bulk after it has been removed to a judicious distance, especially if it is to be converted into manure. Water which carries away sewage, and air which does the same for noxious smells, are also good aids to earth, and are potent deodorants and disinfectants; and act not chemically like earth, but mainly by diluting and scattering the obnoxious matters or odours and not by killing them. The plan of keeping the refuse of communities for manure has its advantages and disadvantages. But, even when the water system of removal is practicable, some utilitarians prefer the dry method in order to save this valuable fertilizing product. If the experiment causes no direct or indirect detriment to health; and does not become a public nuisance, it cannot be deemed objectionable. But if, on the other hand, it does either, and especially the former, safety to health and life should first be sought, and profit made a secondary consideration. But in all cases the old-fashioned and often capacious cess-pools, middens, dead-wells, pans, &c., often used for preserving manure are all to be condemned, and should be discontinued, because they freely emit offensive and disease-generating effluviæ. It is now well known that the permission of dirt-heaps, pig-styes, and so forth in the centre of villages or cities, both barbarian and, so to speak, civilized, was and still is the main cause of much disease, especially of the infectious and contagious kind, by contaminating the air, the earth, and the water. All conservancy modes of dealing with refuse retain noxious and offensive matters till they become still more obnoxious. In principle therefore they are hygienically false, and hurtful in practice. For ridding a house, factory, &c., of dry refuse, probably the best mode is furnace destruction by heat. The resulting debris need not be wasted but made into mortar or cement and employed for building purposes. Thus, sometimes the dry and sometimes the moist systems are the easiest, cheapest, and best. Whichever gives the most complete absorption, deodorization, speediest removal, and highest sanitary safety is clearly the best. Conditions often vary much; and each must be judged on its own merits and met in similar fashion.

Biblical Public Cleanliness

The very great importance of private cleanliness from a Biblical standpoint has already been discussed; and also the important laws laid down so minutely by Jehovah to encourage and enforce it in every possible way, and not only physically, but likewise so as to involve the entire human entity and its different departments. But cleanliness is a word and a matter of much wider Biblical significance than is popularly received;

and has an application as wide as creation. For the Bible gives Jehovah as its very consummation, essence, and type. "For even the Heavens are not clean in His sight" (Job xv. 15): although the beautifully transparent sky and gem-like orbs that adorn it seem to us the very acme of purity. The Holy Scriptures also speak of the Earth's cleanliness (Numb. xxxv. 33; Ezek. xxii. 24). And also that of cities: for though "Jerusalem will not be made clean" (Jer. xiii. 27) is evidently a typical saying, still it is the outcome of a physical hygienic idea regarding the Holy City. But, being a book designed for human tuition and enlightenment, it is mainly of human cleanliness that the Bible speaks. And it is especially in the Pentateuch and the history of the Hebrew Wanderings and story of their camp-city, that we find a most complete and valuable outline of Jehovistic laws regarding public cleanliness. The modern hygiene of cleanliness was clearly forestalled over 3,000 years ago by that of Jehovah; who employed methods which are the very perfection of efficacy and simplicity; and such as to obviate the expensive and elaborate systems we have recourse to in modern life. Jehovah, by His servant Moses, was a far-seeing and most efficient pioneer-teacher and illustrator, not only of the value and import of personal cleanliness as a vital hygienic agent thirty centuries ago; but also as a "perfect" exponent and giver of hints for the best modes of public hygiene and cleanliness; as for camps, communities, ships, &c.; whether for aggregations of civilians, soldiers, or sailors. Especially in pointing out inferentially that the greatest of all factors in public disease-prevention and health-preservation was and is and always will be, excessive and universal cleanliness in all human things; physical purity regarding our bodies, food, drink, air, clothing, abode, furniture, streets, &c., &c.; as well as for our better nature, soul, heart, mind, and morals. In the Pentateuch we find a wonderful system of hygiene; to promote cleanliness, and made not for any particular family or Hebrew tribe, but for the entire community, including its Leaders, High Priest, Priests, and Levites, and the entire laity, even the "strangers." These laws were codified for all; and all had equally to obey. They were communal and national: nay, racial and universal.

When settled in Goshen the Hebrews were more scattered than during the Forty Years Wanderings; some of them engaged in agricultural or pastoral duties in rural districts, where scant attention to scrupulous cleanliness was both less noticeable and less dangerous than elsewhere: others in cities or towns, where they were more under Egyptian sanitary sway; but, as brick-making slaves allowed probably to be as dirty as they pleased, if so inclined. Whereas at the Exodus they were massed together in a community or camp, and travelled so from

place to place, cumbered no doubt with their children and aged people, much baggage, and numerous flocks and herds. Jehovah had to legislate hygienically, and so to speak from the very beginning of knowledge of that sort, for the cleanliness of the people He had taken under His special care, and desired to make into a model nation. The Hebrew camp of over two millions of souls resembled a large city in which the same kinds of uncleanness were apt to occur as in modern ones, and therefore the same dangers to health and life, unless proper precautions were taken to prevent or minimize these sanitary dangers. How, therefore, did Jehovah meet this great and important hygienic emergency, and keep the Hebrew community clean as a public body, so that they might become a model-pure nation, and thus far a model-healthy one; so that the value and efficacy of His laws of cleanliness, laws of the infallible sanitarian, might be recognised not only by the Hebrews but adopted by other less favoured peoples. Let it also be remembered that when the Hebrews left Egypt they were mostly slaves, and had been long under bondage; were therefore ignorant, debased, and in every sense illiterate of hygiene. One of the first, most frequent, surest, and most acute ways in which the demoralizing influence of slavery shews itself is with regard to private and public cleanliness: that is the very hygienic factor we are now discussing. During the first year of their Desert life, when more under the sanitary supervision of Moses, Jehovah not having then divulged His Sinaitic law, both the community and the camp were doubtless a scene of considerable disorder, confusion, and lack of cleanliness; tents and interspaces being alike littered with debris and filth of every sort, such as we see even now in many Eastern cities, and which the more excusable Hebrews of that early day did not see the necessity for removing further off for its obnoxiousness and danger to health. Jehovah knew the sanitary inexperience and carelessness; and also saw that for a remedy they required a firmer hand than Moses had proved, and also compulsory obedience to better and stricter sanitary laws than any that Moses had, guided only by human knowledge, based on crude Egyptian sanitation, if He would maintain their health. Jehovah saw that the remedy was mental enlightenment on sanitary subjects and the hygienic laws of nature, laws even then in force, and from the "beginning."

Public cleanliness has been so fully spoken of elsewhere, when studying the hygiene of the camp (Chap. 20) and Tabernacle (Chap. 19), that it need not be reiterated, beyond pointing out briefly how much and how carefully Jehovah legislated for the sanitary welfare of the Hebrew people as a whole, and when massed into a community; and how He codified for tui-

tional purposes, those laws regarding the very points they were most ignorant of and that were of most importance. Indeed His main sanitary efforts may be regarded more as communal than as personal, as shewn by the prominent laws made, *first*, for the camp, especially for its cleanliness; *second*, for the Tabernacle, especially for its purity; *third*, for the people as a body; and *fourth*, those for the prevention of communal diseases. These points we shall merely glance at here collectively, as they have been more fully spoken of in other chapters.

During the first year or more of the Wanderings the Hebrews were practically left to their own crude, Egyptian-tinged sanitary devices. But this was evidently unsatisfactory, and such as might be improved upon. The latter Jehovah did when He divulged His long-existent, imperative and compulsory system of hygiene, that of Sinai, meant not alone for private but for public observance by the entire congregation; and adapted not only for their subsequent 38 or 39 years' Wandering and camp life, but also for their later settled days in Judea. It is well for moderns to study these, and to compare them with those of lay hygiene. How, therefore, was the public cleanliness of the Hebrew community preserved? What were the chief soiling factors? And how did the Divine Sanitarian legislate so as to minimize or remove the effects of these? After these codified hygienic laws and rules were divulged from Sinai by the real Hebrew leader and sustainer, Jehovah, whose displeasure they had already been taught to fear; and whom they had already learnt to dread; the Israelites were very particular about this department of hygiene, namely cleanliness. The laws laid down for this in the Pentateuch are not only stringent but also minute. And, of equal moment they pervaded every feature, function, and condition in the life of the general public Hebrew community: the people as a whole and all that concerned them; their tents, camp, Tabernacle, flocks, and herds. The small size, compactness, and open nature of their tents as compared with modern houses; the methodical arrangement of their not too healthy camp; planned on the simplest and wisest sanitary principles; and the regularity and comparative ease of their leisurely life in the Desert, all favoured the fulfilment of the sanitary rules regarding cleanliness. In their system each individual of the community performed his part; and in so doing personally aided public hygiene.

The different factors in the Hebrew community which tended to cause public uncleanness and insanitary conditions were the following:—

1. Human uncleannesses. This was undoubtedly the chief danger, and one which had to be met in a public, self-denying spirit. Solid or fluid filth was not permitted

to be deposited or to accumulate either in or outside the tents, but had to be removed and left well beyond the camp. The immediate covering of this with earth, one of the most potent of all destructives and disinfectants, was equally compulsory. This was especially the case regarding those deposits, which must have been large for two millions of people; besides being those which are most likely to putrefy rapidly and badly, so as to give out noxious emanations, and thereby cause dire disease; namely, excretions from the bowels and kidneys. This was only permitted beyond the camp, whither the people were ordered to "go abroad," and doubtless had definite public resorts or conveniences, possibly one or more for each tribe, according to its numbers and requirements (Deut. xxiii. 12-14). The deposit they were commanded to cover up carefully with the disinfectant which is at once the handiest, commonest, cheapest, and best, namely common earth: so as to ensure its instant concealment and speedy decomposition, disinfection, and deodorization. This health-hint many of the lower animals, notably the feline and canine tribes constantly give us everywhere in a very expressive and evidently instinctive manner; their inferior natures thus plainly teaching our higher humanity to reject and cover up what even the human frame itself casts out. From the pages of Holy Writ the suggestion for the now fully recognised "earth system" for water closets and night chairs was undoubtedly derived. And for these nothing better could be devised.

Jehovah's multiple object for the important laws now in question regarding cleanliness is also given in Holy Scripture in these terms, "that the camp may be holy" (Deut. xxiii. 14); that is scrupulously pure, physically and ceremonially; partly in compliment and honour of the presence of God in the camp (Lev. xxvi. 12; Numb. xxxv. 24); and partly as a hygienically educational measure, cleanliness of person being one of the first steps towards the inculcation and reception of cleanliness of the higher kind, in mind, heart, morals, social life, and soul. Physical incites and lures to psychical purity. Cleanliness is next to Godliness. It is the first step towards and often the beginning of Godliness to learn to appreciate and obey God's natural laws willingly. But underlying these two there was unquestionably a most important sanitary object, namely the comfort of the people and the preservation of their health and life by preventing the deposit of loathsome, putrefying, odoriferous and disease-causing animal poisons, for they are no less.

Widespread neglect of this excessive public cleanliness in one camp after another, so that they were practically ever in its midst, would undoubtedly, especially where they made a long stay, have endangered the entire community by undermining the popular health, thus causing defective martial competence and vigour among the soldiers, or even disease, especially infectious ailments, rendering them unable to defend the perhaps widely disease-stricken community. For neglect of this sanitary law, the deposit of matter of this highly objectionable kind in the camp, no stated defilement or punishment was annexed or purification prescribed: doubtless because the offence and danger were made so clear that the people themselves would at once and conjointly resist infraction of the rule. It has been suggested that soldiers in presence of an enemy were possibly exempt. But the same sanitary danger and the same sanitary law evidently applies and holds good to an even greater extent in the case of soldiers and armies, as to an encamped host of civilians: and even greater care has to be taken for these than for a camp of private individuals to prevent objectionable deposits in bulk.

The great sanitary agent, cleanliness, frequently overlaps, dovetails with, and is interdependent on others. Nay, lack of cleanliness is oft the beginning and first step towards creating uncleanness in other sanitary agents. The pure air is largely dependent on cleanliness; for whatever contributes to the latter tends to render the atmosphere purer. Whatever causes physical uncleanness tends to soil the air. So also with our water supply; with the cleanliness of our food, clothing, bedding, houses, and so forth. These hygienic factors are all interdependent. In this will be seen the great value and importance and far-seeing nature of the Hebrew laws for public cleanliness and the instant removal of all soiling influences, especially those likely to putrefy and contaminate other things, especially sanitary necessities. Numbers of people and quantity of refuse in communal life necessarily multiply and enlarge the danger materially and make it serious; and a matter of great and immediate public moment in a sanitary point of view: and one which must be dealt with in a public manner; as private individuals cannot move in such communal matters. The number of "filth" diseases, major and minor, is very large. The best mode of preventing these often dangerous and deadly ailments is to forestal and prevent their cause. This is precisely the method Jehovah followed; employing simple means for most momentous purposes.

2. The Hebrew sacrificial code, an entirely new feature in Hebrew life, introduced a second sanitary factor, that might have become an element of great hygienic

danger from lack of cleanliness. This was a religious function that day by day would have caused a large and highly dangerous accumulation of very insanitary refuse, necessarily opposed to cleanliness and very dangerous to health; because—

1. It was deposited in one place, at or near the door of the Tabernacle, in the very centre of the camp, and therefore where there was most danger, if permitted to accumulate and putrefy.
2. No doubt it was often very large in quantity; as it consisted of sin, burnt, peace, free-will, trespass, and other offerings and oblations (Chap. 16).
3. It consisted mainly of bulky animal debris of the ox, bull, goat, ram, &c., &c.; their flesh, bones, skin, horns, hoofs, hair, entrails, fat, blood excreta, &c.; all highly organized, nitrogenous, and therefore speedily putrescent and sanitarily dangerous.
4. Also the debris and ashes of the selected parts that were burnt; and ashes of the wood that consumed them.

Hence strict and minute rules were given by Jehovah:—

1st. For the instant and complete removal to where it would cause no danger, of all of this refuse. Thus, after a burnt offering, the Priest was ordered to put off his official garments, replace them by working apparel, and then "carry forth" the ashes into a clean place, no doubt officially set apart, without the camp (Lev. vi. 11). Again, after burning on the Altar of Burnt Offering, those parts of the goats or bullocks necessary for the sin offering, the remainder of the animal had to be carried out of the camp and burned with fire (Lev. viii. 17; xvi. 26-27).

2nd. Here, then, were two simple, sensible, and efficacious sanitary appliances for the prevention of offensive sights, disease-generating smells, and the preservation of the public health; namely, the speedy removal and possibly immediate covering with disinfecting and chemically reducing *earth* of the obnoxious Tabernacle debris; or its total destruction by fire. Prevention is better than cure; and no better rules could have been devised to accomplish the two-fold object in view, namely, camp cleanliness and health preservation. By removing obnoxious debris from where it was sure to do incalculable harm, to where it was far

less likely to noxiously affect the community; and by there completely deodorizing, disinfecting, and destroying them by earth or fire, the remainder of the danger was removed: and those dire diseases apt to arise therefrom altogether prevented. If the removal had not been enforced and the debris permitted to remain for private and magnanimous removal, as free-will and good-nature prompted, it probably would seldom have been done. To avoid this ineffectual remedy, removal was made imperative and a public function. Thus by these means also, the Tabernacle, camp, and the people constantly going to and fro from the former, were kept clean and healthy; and much disease, especially of the "filth" category prevented. Thus furnishing another proof of Jehovah's simple methods for most important sanitary ends.

3rd. The slaughter of animals for food formed another manifest source of sanitary danger. This differed from the slaughter of sacrificial animals in being permitted all over the camp. The Hebrews would necessarily do this each in their own tribal precincts, and near their own tent. And had the slaughter been frequent or large it might have been highly fraught with sanitary danger from putrefying blood and other refuse, which laziness might leave where it fell. But, as they did not consume much animal food this danger was possibly both infrequent and slight: while only smaller animals, such as lambs, kids, &c., were used. When it did happen no mention is made in the Bible text how the debris was disposed of. But inferentially this was removed by the people themselves, and deposited, like the sacrificial debris, out of the camp, and these, like that, covered with earth; so as thus to leave the camp sanitarily clean and least likely to engender disease. This form of cleanliness would also clearly tend to keep the streets, lanes, and air of the tented camp, as well as the tents and the people themselves, clean: and thus healthy. Had the slaughter of animals for food been as great or nearly so as for sacrifice, Jehovah, by Moses, would doubtless have assigned by law definite places or abbatoirs outside the camp for this purpose, to preserve the camp cleanliness and health.

4th. The systematic arrangement of the Hebrew camp by Jehovah not only promoted public convenience for intercourse and traffic; but also public health. Only the bare outline of His plan is given; and mainly the

place which each tribe was to take with reference to Jehovah's abode, the central Tabernacle. Can we doubt that Moses had more minute directions and details on this point, unnecessary to record Biblically; especially as Moses was not only an appreciative sanitary scholar, but also an advanced and practical one, and a previous general of armies both in peace and war, and thus acquainted with their requirements, especially ample room? Can we doubt that the Jehovistic will did not command sufficiently wide streets between the different tribes and sufficiently broad alleys between the different rows of tents in each tribal settlement, in which system and arrangement would be as marked as in the entire camp; the tents being pitched as regularly as were the tribes to which they severally belonged? A pastoral community like the Hebrews was not so lively as would have been a commercial or manufacturing one, like many of ours. Still the Hebrew camp was no doubt often a busy scene; and wide alleys, lanes, and streets of the kind now spoken of would favour not only good ventilation, easy access between different tents and tribes, but also to and from the central Tabernacle, the flocks, herds, gardens, water supply and other places outside the camp, where much of their occupation lay. They also promoted easy removal of sacrificial and other debris, and general camp cleanliness. So that while rules 1, 2, and 3 tended to keep the tents, Tabernacle and people clean and pure from offensive matters, they also helped to keep these wide alleys sweet and clean by facilitating removal of garbage and debris. Any one will understand the sanitary benefit of a definite knowledge of localities and permanent plan of camping; who compares the narrow, tortuous, filthy, odoriferous, unswept, and unhealthy streets and lanes of an Eastern city of modern times with the wide, straight, clean ones of more civilized communities, where public sanitation is fully appreciated and attended to.

5th. The law enforcing instant and permanent segregation and removal out of the camp and the ablutions of those afflicted with infectious and contagious diseases, and notably leprosy, and the temporal isolation of that frequent class of diseases called "issues," also did its share in promoting public cleanliness; not only *per se* but also by persistently and forcibly inculcating the cleanly idea on the mind. True, the two millions of

Hebrews had no disease of any kind or even debility among them when they left Egypt (Ps. cv. 36) and therefore had no leprosy. And though they had disease in the Desert, such as plague (Ex. xxxii. 35); plague (Numb. xi. 34); plague (Numb. xiv. 37); plague (Numb. xvi. 49); plague (Numb. xxv. 9). And, moreover, as all the adult males who left Egypt died in the Desert, and must have succumbed to disease of some sort, these ailments clearly did not consist of this disease, leprosy; of which only one case is recorded, that of Miriam (Numb. xii. 10). Nevertheless they might have had many more but for the laws made for the prevention of infectious and contagious diseases (Chap. 26); especially that which forbade intercourse with other nations, for leprosy was a very prevalent disease in that age. Ailing, especially bedridden persons, unable to help themselves, often contribute to make tents and camps unclean in various ways: and the removal of those so afflicted would not only prevent fresh infection, but also tend to materially preserve the purity of the household, the neighbourhood, and the general camp; in addition to inculcating on the public generally the loathsome and objectionable nature of uncleanness as a whole and in every particular. The temporary isolation either in their tents or in the camp, or beyond this, of persons in various other conditions, physiological or semi-pathological, mentioned in Chapters 3, 4, 5, 6, and 7, and the ablutions and cleansings required then by law also contributed to promulgate the idea of the benefits, advantages, comfort, and salubrity of cleanliness among the people as a body. The public physical cleanliness thus taught and enforced, promoted the typical idea, as with private hygiene of great purity in everything, everywhere, and at all times. Moreover, the enforcement of this form of public cleanliness quietly but surely taught purity of the higher life, morals, heart and soul.

6th. The systematic arrangement of the camp was sanitarily far-reaching, comprehensive and masterly on the grounds of cleanliness. In the Jehovistic arrangement the Priests and Levites were camped round the central Tabernacle, which they had to tend and clean. Beyond and around these again were camped the different tribes (Chap. 17). No room was left and no provision made or at least recorded for the herds and flocks. These were kept altogether beyond the

camp. It would have been very unsavoury, uncleanly, and unsanitary to have converted the camp into a huge farm, with stockyards between and among the tribes. The importance of the Jehovistic arrangement from cleanly and sanitary points of view will be evident when the number of cattle, sheep, and other domestic animals is considered; even when they left Egypt (Ex. xii. 38), and still more towards the end of the Forty Years Wanderings (Numb. xxxii. 1). Cattle are both uncleanly and therefore apt to cause human disease as well as cattle ailments by giving us their communicable maladies. The domestic quadrupeds are necessary for our existence; but yet should be made, as in the Hebrew camp, to dwell apart from Man, for urgent sanitary reasons. This the Supreme and far-seeing Sanitarian effected; and thus while cleanliness and purity in all camp matters was no doubt didactically inculcated by God's directions, and the lesson extended even to the flocks and herds, which require hygienic care as much as humanity itself; the purity of camp, tents, and people was alike preserved by the segregation of cattle as much as by the isolation of lepers and the outside cartage of insanitary refuse. Cattle manure would have been almost as unsanitary in the Hebrew camp as animal or human refuse. Everything in the Hebrew camp, and every kind of life, had its allotted place; and this regularity contributed materially to the cleanliness of the whole camp. Thus the more uncleanly parts of the camp were placed outside in the suburbs, so as not to soil the cleaner central human quarter and people, and especially the sacred Tabernacle.

7th. Frequent change of camp was highly conducive to public cleanliness: as it meant removal from soiled to new and clean sites and surroundings. The journeying during the first and second years of the Wanderings, especially between Sinai and Kadesh, was marked by frequent changes of camp, namely, 33 out of the 50 campings, in a comparatively short distance. This was doubtless meant to drill them into obedience to Jehovah; as these frequent movings would necessarily be irksome. Second, they would drill them into method, order, and the routine of camp moving and camp life. Lastly, it would promote camp or public hygiene by preventing uncleanness of the community and Tabernacle by the newly-ordained sacrificial code until the people were more fully drilled hygienically,

according to the recent Jehovistic law, and knew that system more perfectly. The camp site was selected by Jehovah and therefore healthy (Numb. ix. 18; Numb. x. 33-34).

8th. The frequent public festivals and also compulsory inspections were also highly contributory to cleanliness and health among the Hebrews. It has been shewn how frequently change of camp would contribute materially to public and private health by promoting the cleanliness of the tents, household goods, and the general camp and Tabernacle; and removing microbe-laden dust and debris, apt to accumulate even in the most cleanly dwellings, and lie dormant till favourable opportunities for activity arise. The yearly feast of Tabernacles, about six months after the Passover, would contribute to the same sanitary end and in the same way. This amounted to a half-yearly turn out and inspection and cleaning of the house, furniture, &c. The Hebrews had then to change from their tent or abode into a booth made and furnished by themselves (Lev. xxiii. 42-43): of simple kind and necessarily strictly clean. This also involved two other highly sanitary factors, namely, change of dwelling, and open-air or tent life; two of the greatest foes to disease; for in these booths they dwelt, ate and slept. This camping out yearly was universal and involved the whole Hebrew nation. It was a most important factor in public sanitation. Moreover, strict house inspection, when leaven or sour dough was everywhere searched for and removed, was made annually on the 15th Adar, by an official. This also involved thorough house overlooking and cleansing at this season; and a restoration of the healthy environment. Sour dough was putrefactive and was therefore excluded from all sacrificial offerings. And it might also prove unsanitary. It is curious to note that the Romans were equally particular in this matter: leaven being so apt to corrupt whatever it touches. For this, the removal of fermentable matters,, which might directly or indirectly engender disease in human beings, the most rigid cleanliness of residences, their walls, floors, cupboards, store-rooms, furniture, bedding, utensils, and all places and things where fermentable matter might lurk, were cleaned, painted, or distempered; while metallic utensils were scalded in boiling water. The necessity for this ancient Hebrew law and custom has also been con-

firmed by the still more recent findings of modern science; as have also been the methods employed to remedy the sanitary danger, uncleanness. Again the inspection and mending of streets, roads, and sewers were also annually carried out later on in Judea. Among other reasons, this was done for cleanliness. The sepulchres were also whitened; a direct consequence of the provisions concerning defilement by the dead. The time chosen for this was the 15th day of Adar, four weeks before the Passover and after the latter rain of spring, terminating at noon on the 1st day of the Passover. How essentially cleanly and sanitary were these laws also. Wells were also then inspected, mended, emptied of stones and rubbish; a very practical and cleanly act and necessary to give wholesome water to the multitudes assembled for the Passover. Sheep and cattle were also inspected fifteen days before each of the three great Levitical feasts for tithing purposes (Lev. xxvii). And then all the cross-bred, weak, injured, or diseased, were excluded. The inspection of cattle was usually before the Feast of Tabernacles. The healthiest of the domestic animals are always the cleanest, most wholesome, and least likely to give Man disease. The more carefully and cleanly they are kept, selected and weeded, the healthier they are likely to be in the mass and the least apt to beget human ailments by contact or infection. It would be well for the public health now if all food-yielding cattle were as carefully and frequently inspected and weeded.

9. The care taken to promote the general health of the herds and flocks which outlay the camp and were ever present, ever increasing, and therefore a constant source of sanitary danger; contributed to the cleanliness of their part of the camp outskirts; and thus indirectly to that of the entire camp; for unclean soil there would have been carried thence to many a herdsman's tent. Unhealthy cattle, like sickly people, are apt to be uncleanly; and their debris and emanations pathogenic and disease propagating. The Hebrew cattle, like the people and all of their possessions, were under the special care of Jehovah; and were kept so healthy that none were barren or cast their young; thus corresponding to the Hebrew women (Ex. xxiii. 26). But, in addition to this certain Jehovistic laws contributed to preserve the health of the stock, and thus both directly and indirectly pro-

moted the health of the Hebrew camp and people by and through this all important sanitary factor *cleanliness*. Although it is not expressly mentioned, great cleanliness was doubtless compulsory among the Hebrew flocks and herds. These men were practical skilled shepherds; and knew the value of clean food, drink, bedding, air, skin, and general environment for the health and welfare of this the most valuable of their possessions. And no doubt tribe vied against tribe according to their pastoral aptitude, to have the cleanest, healthiest and most prolific flocks; a friendly contest, in which Gad and Reuben seemed to have taken the lead. One of the ceremonial laws likely to promote this laudable emulation was, that animals selected for sacrifice were inspected, possibly by a skilled Levite or Priest, to see that they were without blemish and healthy (Lev. xxii. 21). Although this was a typical observance, its effect would be to incite the tribes generally, only to rear the best and healthiest; for maimed, imperfect, and all such as were least likely to be deemed unclean, diseased, and likely to engender sickness, were sure to be rejected. Another law respecting flocks and herds would have the same tendency; namely, the careful and systematic selection of animals for food, and the refusal of the "unclean" kinds. This law, as already pointed out, was both typical and hygienic; and one for which the most careful inspection was clearly necessary by qualified individuals. Though typical of the benefits and beauty of purity and perfection, even in such apparently trivial matters; the selecting, breeding, rearing, and keeping of cattle, this law was distinctly and primarily sanitary as regards the animals themselves; and secondarily, indirectly so to the Hebrews,, by excluding such as might beget human disease as food. As carried out at the present day, the highly trained and certified officer or slaughterer (Shoghat), who kills as prescribed, examines the carcase and viscera for marks of disease. After his report the watcher (Shomer) certifies the meat as *clean* (Kosher), ere the Hebrew accepts it as food. It would be well for the health of the people of all communities and countries, even civilized ones, if they were as careful in the matter of cleanliness in cattle and sheep keeping, slaughtering, and preparing for food, as the followers of the law of Sinai have been in this important sanitary matter for over three thousand years.

10. Burial beyond the camp was another of the prescient Jehovistic laws that contributed to the public health by keeping the air breathed by the congregation pure, untainted, free from noxious disease-generating gases, vapours, and dust germs that might have polluted it or the earth and water and so have caused disease. To have buried the 3,000 Hebrews slain by the Levites at Sinai (Ex. xxxii. 28); the many more who probably died soon after of plague (Ex. xxxii. 35); those consumed by fire at Taberah (Numb. xi. 1); the victims of the very great plague from lusting for flesh at Kibroth (Numb. xi. 34); the ten false spies (Numb. xiv.); the Hebrews slain soon after of plague (Numb. xiv. 37); the 250 consumed by fire at Korah's rebellion (Numb. xvi. 35); the 14,700 who died of plague after Korah's rebellion (Numb. xvi. 49); those who died of fiery serpents (Numb. xxi. 9); the 24,000 victims of plague at Shittim (Numb. xxv. 9); to have buried all these in the camp precincts would clearly have been a grievous sanitary mistake. The extra-camp burying grounds were an evident sanitary advantage of a distinctly public nature.

11. Public sanitary tuition. The very intimate knowledge which the Hebrew community must have possessed, both of public and private hygiene, made them thoroughly acquainted with its nature, aim, value, and requirements: while the penalties for infraction on so many points of the hygienic law which pervaded everything and everybody would urge both to discussion of the subjects involved, and also to stricter obedience. This widespread public sanitary information would add materially to the effectiveness of the Hebrew code regarding this, the very copestone of the entire law of sanitation, by manifesting and inculcating its value and utility. It was part of the duty, if not of Moses at least of the Priests and Levites, to adjudge, read, teach, and explain the Sinaitic law generally, to men and women alike (Josh. viii. 35; Ex. xviii. 16; xxiv. 7). Even children were taught constantly and minutely at home and publicly (Deut. xi. 19): and all had to study the great sanitary law of cleanliness, if they would know how to avoid the penalties for its infraction, all of them personal and not vicarious. In addition to Jehovistic spiritual aid (Neh. ix. 20) the laws of hygiene formed part of the tuition of the Sinaitic code; and were no doubt forcibly expounded and impressed on the Hebrews by

their Priestly teachers, their wisdom and necessity explained, and as forcibly carried into effect. Public hygiene is mainly the sum total of private sanitation. The more perfect the latter is likely to be if the people generally are aware of the true nature and great value of the sanitary laws thus inculcated by Jehovah not only for individual but for the general good. Those who keep their own bodies, houses, clothing, bedding, &c., clean are those who most appreciate and aim at possessing clean streets, villages, towns, and cities. The Hebrew laity had to obey many ceremonial enactments, that included frequent washings, cleansings, &c.: and it was wise to teach them the important hygienic element that underlay and was endorsed and enforced by the typical; otherwise the people might have deemed them excessively minute and perhaps superfluous. How much this advanced knowledge aided the fulfilment of the Sinaitic law of hygiene, and, above all, cleanliness may be inferred by considering how materially good sanitation and public health would be promoted if the populace of all modern communities had as accurate a knowledge of its motives, methods, and power, and were as fully drilled in its furtherance and as promptly and severely punished for its infraction or neglect. Objectors, conscientious or otherwise, found no place in the Hebrew law of Sinai, but were summarily dealt with. If we teach any individual the private hygiene of cleanliness and its value, he is almost sure to aid public sanitation on the same subject. Hence why the private hygiene of cleanliness was in every particular so fully entered into in the Hebrew code. What was theoretically taught the laity by the Priests was day by day practically exemplified before their very eyes on themselves, their neighbours, the camp, Tabernacle, and all that concerned them. The willing aid of an enlightened and convinced people to back the action of their leaders and representatives is a very material aid towards the furtherance of public cleanliness and successful sanitary effort, like that now under consideration, namely, public cleanliness. It was exceedingly sagacious and discerning to thus popularly teach the Hebrews the elements of hygiene. It would be well if all enlightened and sanitarily awakened nations followed this Jehovistic educational leading in making elementary sanitary knowledge compulsory until it became convincing and alluring.

The salient points in the public cleanliness of the Hebrews of the Desert were thus fourfold:—

a The non-deposit of the most offensive and dangerous kinds of refuse in the camp.

b The instant or speedy removal from the Tabernacle and camp of all that was likely to be offensive to sight, sense, propriety, and health.

c The destruction out of the camp of the objectionable refuse, either by water, earth or fire.

d The constant public cleanliness of everything and everybody; including the camp, Tabernacle, herds, flocks, tents, furniture, &c.: so as to keep the pure air, unadulterated food, and clear water with which Jehovah supplied them clean and healthy.

The Pentateuch divulges Jehovah's chief reason, and that an important one, although typical, for the promulgation and strict enforcement of these hygienic rules for public cleanliness, as this affected the Tabernacle, camp, tents, the people, and all connected with or belonging to them. "For the Lord thy God walketh in the midst of thy camp, therefore shall it be holy" (Deut. xxiii. 14; Numb. xxxv. 34); the latter term evidently denoting *purity*, by the removal of all that is physically offensive. This made the law of public cleanliness so stringently obligatory that every wise Israelite would strive to avoid its neglect. But the second important and underlying object is also clearly evident; one of great importance and sanitary; to promote the general Hebrew health, vigour, and longevity by preventing disease and general corporeal detriment. A third manifest object and motive for hyper-cleanli- of the camp, and one that would appeal to the good sense of the people generally was this: that for nearly the entire length of the Wanderings, namely, from Sin (Ex. xvi.) onwards to the Plains of Jericho (Josh. v. 10), the chief food of the congregation, namely, manna, was supernaturally deposited from the atmosphere on the ground over the camp. So likewise were the quails on at least two occasions. Here was a manifest and strong public incentive for the people as a body to keep the surface between the different tribes and tents sweet, clean, and free from every kind of pollution, solid and fluid. The text runs thus: "when the dew fell upon the *camp* in the night the manna fell upon it" (Numb. xi. 9). In another place, "the dew lay round about the host" (Ex. xvi. 13); when this dissipated there lay "upon the face of the *Wilderness*" the manna (Ex. xvi. 14). Again, on the Sabbath "they could not find it in the *field*" (Ex. xvi. 25). As regards the quails the text tells us in the evening the quails came up and "covered the *camp*" (Ex. xvi. 13). Again, "He sent them meat to the full. He

rained flesh and let it fall in the *midst* of their camp round about their habitations" (Ps. lxxviii. 27). Again, "the quails fell by the camp a day's journey on this and the other side" (Numb. xi. 31). All this circumstantial evidence goes to shew that both the quails and manna were dispersed over the camp proper; between the tents and tribal interspaces and close to the consumers, not in the cattle camp beyond or the untenanted Wilderness still farther off; that is in the very cleanest part of the community, whose combined efforts would be exerted to keep the surface of the ground sweet and clean.

This brief study shews how wise and advanced was the Hebrew theory and practice of public cleanliness. What modern sanitarian can aver that there is anything obsolete, antiquated or puerile about it? And it may be favourably compared with ours of the beginning and middle of the present twentieth century; nay, even with that of the present day. By the Jehovistic mode putrescent matters were never deposited or at least allowed to remain in tent, camp, or Tabernacle long enough to ferment, putrefy, taint the air, water, soil, food, &c.; or cause disease. And to still further lessen and indeed wholly prevent all danger, the objectionable refuse was either buried in the earth or burnt by fire before it had time to putrefy, offend the senses or cause disease. For His honour and credit Jehovah could not permit the nation that He led to fall into sanitary danger through ignorance or lack of a simple yet efficacious hygienic system. Nor could He allow them to become unclean and thereby disease-stricken, weakened, perhaps exterminated; and no model in this or in aught else for other nations. He therefore adapted His plan for public cleanliness admirably in accordance with the circumstances and the environment. The Hebrews frequently changed camp during their tortuous journey from Egypt to Judea; so the methods adopted were such as could be carried out in each new place. They could not adopt the water system because they were in a Desert where the streams were small, dried in summer, and when running not more than would suffice to supply drinking water and fluid for cooking, washing, and cleanliness; and so had to be kept from pollution by sewage. The dry system had therefore to be adopted, combined with ex-camp resorts. This suited the leisurely Hebrews; and might well be adopted in our present hamlets, villages, and even small towns. But not in large ones or cities, where busy manufacturing and commercial people have no leisure to carry out the Mosaic methods and go long distances; so prefer the handier wet or underground sewer and water system; even although the latter, which carried dangerous refuse rapidly away, diluting and dispersing it, is inferior in some respects to earth-covering, which

at once hides, dilutes, decomposes, and devirilizes dangerous refuse, and is one of the very best of disinfectants. All modern sanitarians, moreover, agree that Jehovah's other mode, namely, heat and destruction by fire, is another of the very best and most effectual disinfectants that can be employed for destroying disease germs, and therefore of preventing or stamping out already-prevalent germ-originated zymotic or contagious diseases: two clear forestallments of modern sanitary science.

The great care which Jehovah took to point out and inculcate the minutiæ of cleanliness in every other point affecting human life, both public and private, has already been pointed out. For example, as regards the purity necessary for food (Chap. 5, Vol. 1); also that of the drinking-water supply (Chap. 6); of the air for breathing (Chap. 7); of the clothing, bedding, &c. (Chap. 11); and chiefly of the body itself (Chap. 10); one and all of them matters of first importance in the maintenance of human life, health, and vigour; and also the usual channel by and through which very many and exceedingly fatal diseases attack humanity and lay us low. *Now*, in thus legislating for the wider subject of public cleanliness and purity in all that concerns Man in the mass, and as congregated into camps and communities, Jehovah clearly advanced a step further and attacked the very fount and origin of all of the above forms of uncleanness, and those sources from and by which all that is absolutely necessary for our existence, namely our food, air, drink, &c., &c., become contaminated, impure, and dangerous to health, life, vigour, and longevity by the noxious gases, vapours, dust, and microscopic organisms they are so apt to add thereto. For every one of the necessaries of life now alluded to, our food, drink, breath, &c., do not soil themselves so much as they are rendered impure and dangerous by additions derived from unswept streets, unclean drains and water closets, ill-kept badly-ventilated abbatoirs, market places, public buildings, churches and so forth. Jehovah thus went to the very root of the evil and strove to stop impurity at its fount and source: another practical illustration of prevention being deemed better than cure of sanitary evil. Uncleanness was thus forestalled in several directions.

It would be well if all the communities of modern times, even amongst sanitarily enlightened peoples, whether in cities, towns, villages, or hamlets, had their public cleanliness as well attended to by judicious laws and their strict enforcement, as was the Hebrew camp of the Wanderings. Can we doubt that this added another factor to the many which combined to induce the great healthiness of the Israelites in the Desert and

subsequently in Judea? As a rule Jehovah produces great effects, not by miracles but rather by employing His already constituted and universal laws, in this instance the laws of health (Neh. ix. 29).

The physical cleanliness of the Hebrews extended to every matter that concerned their daily life. It was the combined effect of cleanliness and purity in the camp and Tabernacle, among their cattle and sheep, cleanliness of their food, tents, furnishings, air, water, clothing, &c., &c., which together produced the desired grand and universal result, namely health. Every one of these was considered and legislated for with equal care by Jehovah. To this again, in order to promote the health and happiness of their higher nature and inner life, He combined the hygiene and cleanliness of their moral, social, and spiritual nature. These also were legislated for, and as far as possible enforced, when the Hebrews were obedient, God-fearing and holy; the physical and psychical cleanliness and general hygiene contributing very largely to the health which Jehovah Himself was specially caring for (Deut. xxviii.; Lev. xviii. 5; Neh. ix. 31); using the term health in its most comprehensive sense. Jehovah's hygienic system was complete for body and soul. In both He desired the results to be equally thorough. Godliness of heart, mind, and soul do not contribute directly to physiological healthiness of body; but they do indirectly by inciting to more perfect attention to and observance of God's laws of health and life; and thus effect a materially diminished chance of succumbing to the main pathological conditions that may result from their infraction. A community which is God-fearing and moral may not escape sickness and disease owing to circumstances over which humanity may have little or no control. But a people which is God-forgetting, immoral, and unruly, is much more likely to suffer from neglect and ignorance of God's inexorable laws of health; and indeed is in constant danger therefrom. The history of the Hebrews of the Wilderness furnishes instances of this kind. When obedient they followed God's sanitary laws and were disease-free (Lev. xviii. 5). When the reverse they suffered and died (Numb. xi. 33). The Hebraic law of cleanliness was as complete for the mass as for the Man.

The Jehovistic hygiene, formulated to maintain public cleanliness, was thus far-reaching and comprehensive theoretically: while practically its effect on the Hebrews shews that it was also eminently efficacious. While its dovetailing so closely with the equally imperative and punitive laws that inculcated the higher purity adds to its monumental and tuitional value as the pioneer hygienic system of the world; derived not from earth, but Heaven; not from Man but God, whose

"law," the sanitary code included, is ever and always "perfect" (Ps. xix. 7). Jehovah does not, like us, estimate Man merely at his "cash" value, but weighs him in a higher and more worthy balance.

As with modern private so too with modern public cleanliness, the close connection, interdependence, and correlation of physical purity with that of the mind, social and spiritual life, is still as evident in the history of families, tribes, and nations of the present day as in the story of the early Hebrews. The higher the morality and more elevated the spiritual life, the cleaner they are likely to be, not only as individuals but as communities and peoples: and as an outcome of this, the stronger, healthier, longer lived, and happier they are. The more godless a nation is, as a rule it holds a correspondingly low place in physical cleanliness and in the scale of health, longevity, happiness, and general prosperity. Missionaries working among heathen tribes give similar testimony from practical experience. Thus in India Christian villages can at once be distinguished by the eye from non-Christian ones, by their greater physical purity and the greater cheerfulness of their inhabitants: and no doubt also by their higher health and greater freedom from disease. The public cleanliness, inculcated and enforced on the Hebrews in the Desert, was only their training school for their subsequent more settled life in Canaan. The centuries since these laws for the maintenance of public cleanliness were promulgated by Jehovah for the Hebrews at Sinai, would have been materially healthier had those who enjoyed the information fully accepted and followed the knowledge and sanitary system thereby imparted (Mat. xxiii. 27; Luke xiii. 34). Nor does this unwisdom only include the Hebrews.

As an index of the difficulty of dealing with the ignorant multitude, even in modern times, and a strong proof that Moses, over 3,000 years ago, had a hard task in enforcing public cleanliness by the private purity which forms its sum total, the subjoined table from the latest *Lancet* (July 25, 1903) will suffice; and go far to shew the lack of a sanitary sense and a health conscience among the masses, notwithstanding all that is done for them both publicly and privately by way of an abundant water-supply, public baths, and health teaching. At Charleville M. Secheret gave the following statistics of the working class, taken at random:—

Of these	2	took baths in a bath.
„	18	washed feet on changing socks.
„	52	„ „ twice in winter, bodies and neck Saturdays, heads never.
„	28	never washed at all.
	100	Total

CHAPTER XXVI

PUBLIC DISEASE PREVENTION

"Bear ye one another's burdens" (Gal. vi. 2).

I. SECULAR

The human body, the most highly vitalized, elaborately constructed, and microscopically marvellous machine in the entire animal creation, is not a permanent structure, but temporary: and liable to disease, decay, and death. At the same time few facts in medicine are better established than this, that the latter two can often be materially delayed: while the former, that is disease, may still often be minimized and even prevented by human means and methods. This is true of most diseases. But it is especially so of a class of ailments that most people dread because they are the swiftest, deadliest, most widespread, subtlest, most contagious and persistent of all diseases. The science and art which can, like this, aid in prolonging human life, making the body stronger, existence more enjoyable, and preventing or lessening the many diseases that afflict the frame are surely worth sedulously cultivating. We can largely look after the prevention of our individual diseases, contagious and otherwise. But the care of those of the community is a far more serious matter, which has to be raised to the dignity of a public function, and relegated to municipal and government authorities: on the principle that by thus caring for the health of others we also and thereby guard our own. The prevention of disease is secularly a comparatively modern and indeed Nineteenth Century study; though one that is now making giant strides. Indeed, the genesis and rapid growth on secular lines of sanitary science, hygiene, health preservation or disease prevention (all practically convertible terms) is one of the most pleasing outcomes of the union of theoretical and practical modern medicine, the aim of which is, not so much to therapeutically cure as to kill and entirely stamp out and eradicate disease not only from the region but from the race: or at least to modify and thus lessen its virulence, frequency, and fatality.

The great prevalence and variety of disease and the value

of preventive medicine in lessening and preventing it, has been illustrated elsewhere by statistics. So also as regards infectious and contagious disease. But a few fresh figures will suffice to remind us of the foe with which we have to deal in these infectious and contagious ailments. A very large percentage of the disease and the mortality that has occurred among mankind from the earliest ages on to the present day has arisen from diseases of the infectious and contagious type; as for example, plague, leprosy, pestilence, cholera, small-pox, measles, yellow, scarlet, typhus, typhoid, &c., &c. Some faint idea of the great prevalence, importance, and desirability of getting rid of those, if possible, may be gleaned from the following statistics and the large decennial death-roll resulting from no more than four of them; even in a comparatively limited area. Thus in the ten years from 1856 onwards there died in the United Kingdom from scarlatina alone 280,000; from measles alone 130,000; from whooping-cough alone 150,000; and from small-pox upwards of 60,000. This shews that in ten years about 600,000 of the population of Great Britain ended their career thus: that is about 60 thousand per annum. Statistics of other countries and also of earlier periods would furnish similar telling statistics; although it would clearly be difficult, if not impossible, to estimate the huge total mortality that must have resulted from the above scourges since the first appearance of disease among men. But the facts already adduced shew what a subtle and terrible foe mankind has now and has long had to deal with in these zymotic or contagious diseases.

On the other hand a gradually diminishing sick list and death rate from the same zymotic group furnishes one of the most remarkable testimonies to the value of sanitation to be found in the entire history of disease. Thus the deaths from typhus and typhoid in England in 1865 were 23,034. Whereas ten years later, in 1875, there were only 13,063 deaths. Still later they had dwindled down to 9,945. And further diminution is to be expected with the individual and communal sanitary efforts now in progress. As already pointed out (Vol. 2, Chap. 18) the statistics from small-pox and other zymotics are even more remarkable. Though brief and scanty these statistics will suffice to shew the intense human interest that centres in disease and its prevention, especially infectious and contagious ailments.

The public, national, nay, racial, importance of these communicable diseases will be apparent if we consider that when an individual succumbs to a non-transmissible ailment he suffers so to speak alone: and the result, though perhaps serious enough to himself, his family, and friends, is of comparatively

trivial import as far as the public is concerned. But if he sickens from an infectious and contagious disease his illness becomes at once a public calamity and a matter of national, nay, perhaps world-wide, import. For during his entire indisposition, and especially while convalescent, he becomes a centre of infection and contagion; because his breath, perspiration, excretions, clothing, and every atom and article which comes from or touches him being charged with the specific poison which his frame is busily employed in throwing off: so that from him, as a focus and fountain, the malady may perchance radiate and spread epidemically and indefinitely, till it perhaps ultimately involves millions in its unpleasant and perhaps fatal embrace. No one can foretell how long the calamity that may spring even from a solitary case may last, or where it may end. Nor can they calculate the amount of disaster, misery, pain, and even deaths it may ultimately occasion among people, all unaware perhaps of the primary source from which their trouble came.

Hence why the outlook regarding these diseases requires special careful study. And why the means for preventing them; or, failing that, of staying their progress, becomes a matter of the greatest moment, and raises grave questions both for sanitarians and legislators. It is particularly during epidemics of these contagious and infectious diseases that the truth of the adage "prevention is better than cure" becomes most apparent: and also the great importance of its practical outcome, as seen by the wise application of hygiene or sanitary measures. Or, to put it in other words, it is of far more importance for the inhabitants of all, and especially great and crowded commercial and manufacturing nations and communities to see that they are in a condition capable of repelling devastating diseases like those now in question, than that they are provided with suitable remedies to oppose them after they have gained a firm footing.

Various modes of dealing with these virulent and deadly diseases have been suggested or tried. To simply cure or tend each as it arises does not wholly suffice; as each fresh case is a focus to beget new ones. It is now universally recognised that it is infinitely wiser and better to try to forestall and prevent them by a combination of methods, systematically carried out, including:—

1st. *Notification* and *Inspection*; the former by the ailing or friends to report the existence of disease, and the latter by responsible and expert officials, to decide whether the case is a true or only a suspected one.

2nd. *Isolation* for a longer or shorter period of the true or suspected disease from the family and community,

until its nature is decided or till the disease is cured and all danger of infection or contagion has ceased; thus to let the old matured disease die a natural death and the infection become dissipated. This separation of the ailing from the healthy and susceptible goes far to prevent the spread of the disease; and is usually associated with the following.

3rd. *Disinfection*, thorough and if necessary repeated, of the individual, the clothing, bedding, room, dwellings, and belongings, to destroy germs of disease constantly thrown off from the ailing frame; and thus prevent or minimize the spread of the disease by killing the baby or full grown microscopic germs as fast as they emerge.

4th. *Antidotal* treatment; the introduction into the body or blood by vaccination or subcutaneous injection of counter poisons or antitoxins that either modify the human system so as to make it resist certain diseases, or only succumb slightly to them, or help it to recover from their morbific effects. This differs from disinfection in the antidotes being fairly introduced into the body and not merely applied outside. And also in these being mainly of an animal nature and not vegetable or mineral.

By the united action of these four methods we endeavour to crush or stamp out entirely various infectious and contagious diseases, such as small-pox, diphtheria, yellow fever, cholera, rabies, tetanus, &c. And no doubt the principle will in time be extended to all infectious and contagious ailments. But for reasons, to be presently explained, these eradicative plans do not progress so rapidly as could be desired. Hence, for the present at least, they must be regarded mainly as theoretical and chimerical, so far as the race is concerned, and even as regards nations; although by no means impracticable in smaller enlightened communities, where unanimity of opinion and combined action are less impossible. Thus, as yet, we are unfortunately driven back in great measure on the third or germ-killing mode of dealing with and endeavouring to stamp out infectious and contagious diseases. Hence it is this that we have chiefly to study here: important *per se*, and doubly so as aiding the others. This, the poisoning, destroying, and thereby rendering disease germs or their spores innocuous as they float unseen by our ordinary vision in the air we breathe, water we drink, food we eat, soil we till, the waste life-products we throw away, nestle in the clothes we wear or sleep in, and other well-known media; by which they are transferred to others and by these again spread from person to person; is a

most important object, and one the study of which is both interesting and abstruse: because these bacteria, especially their spores or germs are so very minute and usually only discernable by the highly magnifying powers of the microscope. We strive to effect this object by chemical means and by the aid of *disinfectants*. Of these Nature has with singular and no doubt intentional appositeness and forethought supplied us bountifully and of various kinds; although as to the actual and relative value and virtue of these there is still much doubt; the main difficulty in the matter being to find out the precise medicine or chemical that will slay the parasite without poisoning, harming or seriously inconveniencing the individual or any organ or tissue where they have made their abode. Many can be poisoned easily out of the body but not so easily in the frame; or only by means that would make the cure worse than the disease, as the poison might kill the person. Moreover, this germ-poisoning process is not so easy a matter as might at first appear. Because these micro-organisms are often the hardiest of organizations and can bear extremes of heat, cold, dryness, moisture, even chemicals and other unsanitary and devitalizing agencies and conditions that would destroy larger and more highly organized plants and animals. They are therefore correspondingly difficult to cope with, both therapeutically and hygienically.

It is therefore important to distinguish between the different varieties of chemicals employed for disinfecting and allied purposes: and especially to know the main differences between the chief kinds, namely deodorants, antiseptics, and disinfectants, in nature, potency and general application.

1st. *Deodorants* or smell-destroyers are gases, vapours, fluids or solids, which either cover, conceal, or kill offensive odours. These include vinegar, many essential oils, gums, resins, &c., familiar to the perfumer, and other chemicals, simple and compound.

2nd. *Antiseptics*, anti-putrescents or preservatives, are such as preserve or prevent decay in animal or vegetable substances or fluids, especially foodstuffs. Chief among these are cold, sugar, vinegar, alcohol, glycerine, many oils, and various chemicals.

3rd. *Disinfectants* are usually stronger and combine the properties of the other two; by not only destroying bad smells; but also by staying and preventing further decomposition: and, above all by not only destroying but also preventing the further generative development of specific microscopic plants and animals, both bacterial and fungoid; that is, those morbific organisms which abound in the air

we breathe, food we eat, and water we drink, and which, when introduced into the human body in either of the four usual ways, namely by the respiratory passages, alimentary canal, skin, or by the surgical lesions of the body are apt to find a nidus in the blood or tissues, there to generate and develop what are termed the infectious or contagious diseases of the zymotic class already spoken of. Clearly if we thus succeed in destroying disease germs we shall prevent the spread of the special infectious diseases that we endeavour to combat and crush.

We have here mainly to deal with the Disinfectants or true germicides, bactericides, and disease preventers. Recent careful experiment has shewn that some of those on which we have long depended most are practically very unreliable and even of no value. For example, borax, boracic acid, sulphite, and hyposulphite of soda, ferric sulphate, salicylic acid, chloride of zinc, sulphate of zinc, thymol, sulphurous acid, are not germicidal even in saturated solutions; and are therefore practically inert as disease preventers. Although in a 5 to 10 per cent. solution they are potent antiseptics, by virtue of their power to oppose the development and multiplication of septic bacterial organisms. Sternberg gives the following relative importance, activity and value of the really applicable disinfectants, especially in surgical operations and medical practice for the destruction of pathogenic micro-organisms, both hypothetical and demonstrated:—

Mercuric Bichloride	1 part in	20,000
Potas. Permang.	„	833
Iodine	„	500
Creosote	„	200
Sulphuric Acid	„	200
Carbolic „	„	100
Hydrochloric Acid	„	100
Zinci Chloridi	„	50
Ferri Chloridi Tinct.	„	25
Salicylic Acid	„	25

Of these the first or corrosive sublimate is so potent that one part in 300 thousand arrests the development of the spores of charbon or splenic fever. Some of the others are not very efficacious. While others possess the serious disadvantage that they cannot be safely employed to kill germs in our bodies because so poisonous that they might kill us as well as the bacteria; and notably mercuric bi-chloride. We still want to find such as will meet this point. For this Koch's researches are bringing the vegetable aromatics again to the front as antiseptics. Thus he has shewn that Oil of Peppermint is one of

the best of microbicides, germicides, and paraciticides; and one the inhalation of the fumes of which by the lungs and imbibition of the oil into the human stomach is harmless, unlike the mercury salts: its potency moreover being such that one part in 300 thousand arrests the development of the spores of charbon; while the vapour quickly kills both spores and bacilli. It is thus much more potent than corrosive sublimate as a germicide. And thus hints at the possible potentialities of other vegetable oils and aromatics. No one appears to have experimented fully on the vapours and virtues of the Mosaic aromatics which form part of the Holy Incense and Anointing Oil. But one of them, Oil of Cinnamon, has been highly praised. Other vegetable odours in the above list are also prominent, viz., carbolic acid and creosote. Eucalyptus Oil is said to be a three times stronger antiseptic than carbolic. Perhaps in this direction also lies the secret why the terebinthinates are coming into favour as safe and sure germicides for inhalation in phthisis: and other aromatics like those used in the Mosaic ceremonial. Assuredly the Divinity and All-knowledge who selected these did not err from lack of bactericidal information, and knowing them all fully, selected the best. Corrosive sublimate is at present by far the best for general disinfection out of the body; being sure, rapid, cheap, colourless, odourless, and convenient. Next to it ranks Potas. Permang. or Condy's fluid. Next to this stands boric acid, and then iodine. For closed spaces bromine is perhaps the most reliable; and next to that, for the same purpose, but less expensive, is chlorine. Better may yet be discovered either in the mineral or vegetable worlds. Our hope lies largely in the latter. But when our knowledge is more perfect; each may have its proper vocation and be relegated to its own special work, whether that may be the disinfection of clothes or houses or sick persons, dead bodies, sewers, privies, streets, wounds, or lesions of structure, either in the skin or mucous membranes of the respiratory gastro-intestinal or genito urinary mucous tracts. Though applicable for surgical purposes these cannot be fully and fearlessly employed as blood and tissue bactericides, because poisonous. We may yet hit on milder innocuous ones; and are all the more likely to do so if we follow Nature's hints. The ozone of the air is powerfully disinfectant. Hence largely the healthiness of air containing it abundantly and the unhealthiness of air containing little or none. The piney odours of Archachon and Bournemouth, &c., so famed for phthisis, apparently owe their virtues to the diffusion of aromatic oils and the ozone thus generated. One drop placed under a bell jar covering a cultivation of the cholera baccillus will kill both bacilli and spores in 48 hours; likewise those of phthisis and diphtheria. Ozonizers, like

Rimmels, not only cover but destroy foul air and unpleasant smells; that is, all that is dangerous and disagreeable in the atmosphere, but also emit a delicious and refreshing fragrance suitable for the most nervous and delicate persons, free from nauseous and irritating odours, and obnoxious to morbific bacteria in the air or in the human air passages.

Cold has been alluded to as a preservative during its continuance; but it is not a complete bactericide, as many iced germs revive on being thawed. But it is different with heat. We are only now beginning to find out the efficacy and universal applicability of heat as an easy and thorough excorporeal disinfectant; and that is almost the only agent to which nearly every known article likely to retain infection can well be subjected with any real assurance of success. Both in its dry form as hot air, and its moist form as steam, it can be used with certain and assured success to destroy the most tenacious of the known forms of infection. Recent experiment has shewn that, with the exception of the spore-bearing cultivations of Bacillus Anthracis, all the infective materials that were tried were destroyed by an hour's dry heat of 220° F.; or by five minutes' steam at 212° F.: and that their spores or germs, so much more difficult to kill, were destroyed by four hours' exposure to dry heat at 220° F.; or by one hour at 245° F.; or by five minutes' of steam or boiling water at 212° F. Moist, however, is more rapid and penetrative than dry heat, especially when the steam is used under high pressure: and better still by simply *boiling* the article for a few minutes; and better than all by total destruction by burning; which ensures complete disintegration. There is thus a wide difference between a deodorant and a disinfectant. Many of the solid, liquid, and gaseous chemicals often erroneously employed for disinfecting purposes, such as vinegar, camphor, &c., merely replace one smell by another, and are entirely powerless for the purpose for which they are intended. Indeed, the whole subject of disinfectants, deodorants, antiseptics, &c., is very intricate and complex, like chemistry itself; the science to which it belongs; and like it is only in the stage of investigation.

But even before we have discovered the true, the best, and the wisest modes of applying disinfectants for the prevention and cure of disease of the infectious and contagious types, or otherwise, it is clearly necessary that we should also know precisely the nature of these diseases and their true cause. Much mystery still surrounds the nature, origin, and propagation of these diseases; although light is fortunately gradually dawning. The exact nature and place in creation of the disease germs now ascertained to be their cause, and on which disinfectants are required to act, so as if possible to sterilize or destroy and

thus render them inert, was not until lately known; for the simple reason that they had never been chemically or microscopically detected in the blood, tissues, secretions, or excretions in which they are propagated; or in the air, soil, water, food, or other media from which they find an entrance into the human body. For ages their existence even was unsuspected. Till the discovery was made, contagious and infectious ailments were thought to originate in occult and subtle atmospheric and telluric causes difficult to specify or detect. And not till the present century, especially the past 20 or 30 years, did their true cause appear, and the actual existence of the germs on which they depend become verified by the microscope which minutely explores the arcana of the human tissues, as the telescope does the hitherto mysterious star depths. Even after their existence was verified their true nature was long undecided. It was uncertain whether they were inconceivably minute particles of solid or semi-fluid decaying matter of chemical nature, perhaps mainly derived from the effete tissues and accumulated by non-elimination or imperfect elimination by the usual emunctories; and acting on the glands to which it is carried or on the blood itself, either chemically or as a ferment; in short if it was purely chemical. Or if on the other hand they consisted of very minute microscopic, animal, or vegetable parasitic organisms, that somehow entered and lived in the blood and tissues; and mainly formidable from their countless numbers and rapid power of reproduction and multiplication. Later research has gone far towards settling this question. The human body has long been known to be a nidus during certain conditions, internal or external, for many animal and vegetable parasites, that find a fit soil to live in and prey on almost every one of its many organs, tissues, solids and fluids; thereby primarily or secondarily causing some of the most serious and often fatal diseases that were wont to puzzle us. Within the last quarter of a century some of the most frequent and deadly ailments have been included in this category of bacteric or microzymic ailments. This source has been proved, or apparently proved, as regards typhoid, splenic, and yellow fevers, anthrax, erysipelas, influenza, tubercle, leprosy, diphtheria, pemphigus, cholera, lupus, ague; and perhaps every one of the infectious and contagious or inoculable and communicable diseases, both of Man and animals, such as scarlatina, measles, small-pox, &c., have a corresponding origin. Other observers, however, maintain that these diseases are wholly distinct from bacteria, and that the latter are merely accidental, like confervæ on a stagnant pool. While others conceive that both causes may be at work. And that the impure blood and tissues engendered by the disease, and laden

with poisonous excretions and the non-eliminated alkaloids, named ptomaines or lencomaines, form a suitable soil or nidus in which these microscopic germs live and flourish; and but for which they would not find a home in the body. An idea according to which both agencies act on the disease-stricken frame; the microscopic organisms feeding on and helping still farther to weaken and perhaps ultimately kill the already diseased, wasted, and debilitated body. The whole question of the origin of zymotic diseases cannot yet be said to be definitely settled or to have completely passed out of the region of controversy. But it seems certain that if not the cause, bacteria are at least a materially aggravating factor in these and perhaps many other human ailments.

Hence their importance in creation to us; their interest to humankind; and the necessity for studying this recent and previously unsuspected branch of natural history and now etiological agent. Bacteria are practically found everywhere and in everything; in the air, water, soil, in our food, drink, and breath, and even in our bodies. Some varieties are harmless, even beneficent to humanity; others inimical and morbific. Possibly each disease of the many thus originated has its own special bacillus. Like animal and vegetable life generally bacteria abound most close to where earth and air come in contact: that is the plane which Man chiefly occupies. They are far less abundant on the ocean and in lofty altitudes. Certain conditions of atmosphere seem to favour their vitality and superabundance and evil influences, seeming to blight our race and cause epidemics. Again, some varieties are more tenacious of life, difficult to destroy and exterminate than others. The disease generating kinds enter our bodies by the lungs, stomach, skin, or sores; and endanger health and life chiefly by multiplying so rapidly and prodigiously in the tissues, lungs, bowels, glands, muscles, blood, or wherever the particular disease chiefly manifests itself. From the body they or their spores are finally thrown off in myriads in the excretions to supply fresh infection for new cases, by attaching themselves to clothing or getting into the water we drink, food we eat, or air we breathe. During epidemics they are everywhere, and it is difficult to avoid them, they are so minute and invisible to our gross human senses. The air is full of them. Thus Aitken has filtered this and by the microscope shewn that in a Scottish pastoral district where the air was "pure" the number of dust particles ranged from 500 to 9,000 per cubic centimetre. The air of a meeting room contained 400,000 dust particles per cubic centimetre; the air near the ceiling had 3,500,000 particles per cubic centimetre. A large proportion of these dust particles, especially during epidemics, consists of bacteria, both

benign and morbific. In size bacteria are the very minutest form of plant life; and stand about in the same proportion to a man as a grain of sand does to the highest mountain. About four hundred millions of them spread out in a single layer would occupy, without overcrowding, the space occupied by a postage stamp. Their rate of increase is so enormous that, were it not for certain restraining influences the human race would shortly be overwhelmed. Thus, in twenty-four hours the total number originating from one single bacterium exceeded sixteen and a half millions; and after a week the number could only be expressed by figures of fifty-one places. Fortunately, as restraining influences, they sometimes live on one another; they cease developing under a scanty or absent food supply; and also produce substances poisonous to themselves. Bacteric natural history thus becomes an important study: especially that of the disease-producing varieties. We know, however, that hair, epithelium, pus cells, clothing, food, fluids, furniture, bedding, household utensils, and all the ordinary articles of inter-communication between person and person catch and retain them, and are thus the usual media to which these germs of disease or their spores cling till they can act as contagion-carriers and reproduce disease in a fresh person. To do this only a single bacterium is enough in favourable conditions to lay low and even kill the strongest individual. And we also know that water and air, both pure and tainted, especially the latter, are the chief vehicles in which they live in the quiescent or resting stage of their existence, until they meet with atmospheric and other conditions favourable for their development, and also a suitable, weak, and predisposed individual on whom to fasten and enter on their active career. When a contagious disease exists, therefore, our object should evidently be to prevent the air, food, drink, clothing, &c., near it from being contaminated. Or, if that is impossible, we should next strive to lessen or altogether destroy the contagion with which these media have become charged. This involves the practical application of bactericides.

The chief modern diseases originated and propagated by infectious or contagious bacteric germs belong mainly to the class called the exanthemata; and include typhus, typhoid, relapsing, remittent, dengue, cholera, plague, influenza, whooping cough, diphtheria, erysipelas, dysentery, puerperal fever, farcy, glanders, scarlatina, measles, small-pox, malignant pustule, and others. The above-mentioned object, namely the prevention, limitation, and extinction of these infections and contagions, we effect by sanitary measure, which have all a fourfold reference. 1st, to the infected person; 2nd, to the house in which he dwells; 3rd, to the community, village, town or city where

he resides; and 4th, to the county, district, nation, or continent to which he belongs.

1st. No matter which variety of infectious and contagious disease we have to deal with, the individual, nurse and room are, or should be, at once and fully isolated; that is they are allowed to have no intercourse with their family or friends. The clothing, bedding, furniture, and all else in the apartment should also be isolated. His washing and cooking are also done separately. The patient, bedding, clothing, room, &c., and all that he touches or handles, are thoroughly disinfected and as often as necessary during the progress of the disease, especially during its decline, and, above all, before the isolation is raised and he is to mingle again with his fellow creatures. The dejections and excretions should also be thoroughly disinfected or destroyed before being thrown away; as it is mainly by them that the disease germs are emitted from the body; and by evaporations or particles from which that other persons are infected. Moreover, the person should not be permitted to "go abroad" freely until the disease is well out of his system and all danger of propagation to others is past.

2nd. The infected house should be kept strictly isolated till all danger of propagation of the disease is past: and also thoroughly disinfected; its sewers kept in perfect repair; these being potent factors in conveying disease to others.

3rd. The infected street and community cannot be too thoroughly watched, isolated, and, if necessary, disinfected, to endeavour to prevent the disease from spreading to other quarters and communities; because it has hitherto been found difficult to limit disease to the individual house or quarter or city; mainly from the impossibility of making those devices and especially disinfection thorough; especially that of the dejecta, which are great disease carriers, and which escape from the house by the drains to the main sewers, and thereby contaminate the general atmosphere and community. Seeing that hitherto all other systems have proved more or less glaring failures, Pasteur has made the wise suggestion that the only safety for large communities from the great and constantly increasing danger of typhoid and the exanthemata or eruptive fevers consists in making the sewers air-tight, and terminating them in an enclosed space far beyond the city limits, where the public refuse is

received, and converted at once into useful products, manurial and otherwise, by chemical or electrical means on a large scale.

4th. National quarantine, the general adoption of hygienic measures, including rigorous disinfection when and where necessary; and public and private cleanliness should all be as frequent and perfect as are those of the infected individual or house; if we would keep an epidemic disease limited to the street, city, county, or nation, in which it sprung up and has become located.

Moreover, so minute, insidious and hardy are the germs of these exanthematous diseases that too much care in the various details of personal, communal, and national disinfection and general hygiene cannot be taken. It is want of care in these details and items, and as regards their minutiæ, that permits them to defeat us, keeps them alive both in the epidemic and sporadic form and that in all countries: a matter largely excusable in a savage community, but not so in any civilized and sanitarily enlightened country like this.

Unfortunately, carefully planned medico-hygienic methods like those now outlined are not always easily carried out, either singly or in combination; and mainly from opposition on the part of those most interested, namely, the public, and those who suffer most by their neglect. Sanitary, like scientific and philosophic truths are often hard to inculcate, and frequently many a precious life is lost or ruined ere the sanitary lesson is learnt of the deep unwisdom that lies in disregarding medico-sanitary advice and precaution; based as this always is on the very highest and best philanthropic and skilled medical counsel. If we could attain unanimity of opinion and concerted action of the people, municipal and government authorities, so that every individual, family, community, and nation in the world were to fully carry the fourfold device already mentioned out; diseases of this kind would one and all eventually and even comparatively soon disappear: or they would at least become so rare, scattered and mild as to be deemed curiosities; notably small-pox, the first attacked, and that would very soon have been obliterated at least in civilized countries, but for this cause: ignorance, stubbornness, indifference, and antagonism among the masses and nations, not alone among the heathen, but even among so-called enlightened peoples, making it impossible to carry out this plan effectually. Most people are convinced of the advantages of the decimal system of weights, measures, and coinage; yet how difficult it is to make nations so unanimous as to agree to its universal adoption. So with medical matters and disease prevention. It is difficult to obtain complete and combined action even among enlightened people, owing to the

multiplicity of conflicting interests, so as to have thorough and effective national, communal, notification, inspection, isolation, disinfection, and antitoxic treatment. Because these measures give personal and social trouble; and are often evaded for no other reason. The opposition to complete and effective isolation of the sick from the healthy, as when a family or one in a family, is afflicted infectiously or contagiously is perhaps the greatest difficulty, and one which is sometmes insurmountable, owing mainly to social and emotional objections to judicious and simple sanitary precautions, even among people of otherwise sound judgment, whose better reason convinces them of their wisdom as applied to others: and yet would forbid their enforcement on their neighbours. Although the better classes sometimes do it is chiefly the masses and the ignorant, that is the majority, and therefore those who are most interested in this reform that stand most in the way of the stamping out of the infectious and contagious diseases by objecting to and if possible evading isolation, inspection, disinfection, &c., partly because they deem them, *first*, a restriction on the liberty of the subject; *second*, an offensive and impertinent intrusion into private affairs; and often chiefly or solely from an unnecessary fear that the ailing might be neglected if removed from the personal care of their relatives or friends: although, regarding dispassionately the measures to effect this would be no harsher or more burdensome than those now enforced by law in every well-regulated household where infectious disease exists. Moreover, just as we prevent homicidal lunatics or rabid dogs by legislation from destroying the lives of our fellow men, why should we not act similarly regarding infectious diseases, and notably that loathsome one, small-pox, that annually destroys hundreds to their one? The antitoxic treatment, especially vaccination and re-vaccination, are also often evaded or neglected by the ignorant and sometimes even by the educated. By the former, because unaware of their importance; and by both because imperfect states of popular intelligence and mistaken notions of personal liberty often make us forget our duty to our neighbours. Thus it happens that the great cause of the non-emancipation of our race from infectious diseases generally, especially from the typical and on the whole most objectionable one, smallpox, is not the imperfection of medical art but the limited intelligence of the people disabling them for a perfect appreciation of the benefits to be derived from isolation, vaccination, &c. The people not unfrequently object to this compulsion under the unjust, unwise, irrational and disastrous idea that it implies and involves coercion and interference with the freewill and liberty of the subject. Whereas these sanitary precautions, meant to save life, health, and personal appearance from some of the most horrible of diseases, and based on in-

disputable evidence of their practical utility and beneficence, and suggested by the abiest medical minds and legislators, whose sole aim is philanthropic and unselfish; is no more coercive in its social and personal aspects than are the Ten Commandments framed by the Almighty. Nor are they more so than the ordinary civil and criminal laws of nations; meant to keep the seething and unruly mass of mankind in order. Or than the complete laws of health, so fully given in the Holy Scriptures; framed to keep the human body in proper physiological condition; and often necessitating great and constant self-control and self-denial. These various codes one and all are necessary to keep the human race as a body in a healthy condition, socially, morally, spiritually, physically, and sanitarily. And from this point of view all of them are not only judicious but also obligatory on every individual and community; not alone for their own self-interest but for the welfare of their fellow creatures. Governments therefore and municipalities have or should have the right not only to regulate and control but also to prohibit whatever is vicious and hurtful; and also to enforce whatever is the reverse; and to promote all that is prudent and likely, like vaccination and re-vaccination, to be not only for individual but for the general good. Erroneous and widespread views like the above it is the beneficent purpose of medicine to remove. And this it effects or should effect mainly by the diffusion of popular, simple, and easily understood medical information, especially sanitary teaching of the poor, uneducated and ignorant: as the Priests did the Hebrews of the Wanderings.

2. Scriptural Disease Prevention

The Biblical rules and references to this subject are specially noteworthy: because not only practical and sound but also comprehensive and far-reaching, and in their entirety not only anticipative of but also in some respects still in advance of the present day, enlightened though it is fast becoming in practical medical matters. Indeed the most important and binding hygienic enactments of the Holy Scriptures, especially of the Pentateuch and Mosaic code, are those which aim at arresting or preventing the spread of diseases of the infectious and contagious class. In this no fewer than four of these most important and indeed fundamental sanitary ideas already spoken of and often supposed to be entirely modern, were included and are thus forestalled in originality of conception and practical application; namely, notification, inspection, isolation and disinfection, for the prevention of infectious and contagious diseases. One, namely the antidotal treatment alone is modern; and was omitted doubtless because the

Hebrew mind and knowledge were too crude for its acceptance. These facts were given as part of a further deeper hygienic revelation of a threefold nature; namely, *first*, that it is possible to prevent or stamp out the contagious disease leprosy; *second* and inferentially that it is possible thus to get rid of all infectious and contagious diseases; and, *third*, all diseases may be combated similarly and prevented. The Divinity, by His mouthpiece and amanuensis, Moses, was thus the first to inculcate and practically inaugurate this altogether new process of meeting disease, the *preventive*; and that by the combination of the very methods now employed by sanitary science.

From amongst the numerous infectious and contagious diseases the Holy Scriptures selects leprosy as typical: and elaborates for it and thus for all minute and stringent hygienic laws for its extirpation. These laws are eminently practical and efficacious for this disease. But they are also far more than that, and have, as no doubt intended, a far wider application; as they are unmistakeably suggestive that the same or similar principles of prevention by isolation and other sanitary measures may be applied, and with the same results, to infectious and contagious ailments generally in all periods and places; and not only to these but to the multiform phases and kinds of disease generally. The discussion of these themes will be found in Chap. 25, and therefore need not be repeated here at length but only in brief. The great and practical value and depth of the Mosaic "laws of the leper" made it well worth study. Leprosy would doubtless have been as effectually eradicated from the Hebrews of that and subsequent periods as was the plague of fiery serpents, &c., but that one great obstacle to hygienic progress existed, namely, indifference and self-will, both nearly as rampart in his day as they are among the masses now.

The chief mode both of treating and preventing leprosy among the Israelites consisted in completely isolating the sick and their effects; and minute rules for this are given (Lev. xiii. and xiv.). For leprosy no medicine is mentioned in the Holy Scriptures, either internal or external. But when leprosy was suspected the person was taken to the Priest or High Priest, by whose skill and intelligence the nature of the case was decided (Lev. iii. 1-7). And we find plain rules laid down for its management, both when the disease was yet uncertain and when it was found to be real leprosy. When still doubtful the individual was pronounced unclean, and shut up, that is isolated for seven days. If the disease had then stayed and had not spread, that is was still present, he had to wash and be shut up or isolated for seven days more. Then if the eruption had

darkened and not spread it was only a scab and non-leprous; and he had merely to wash his clothes to be set free and considered clean according to law; that is ceremonially and hygienically pure and free from infection. This Mosaic law regarding leprosy is the earliest establishment of isolation in the treatment and prevention of disease that we hear of in the history of medicine. This marks the earliest systematic isolation of infectious diseases with a view to their prevention in recognition of their contagiousness. And the first instance of the treatment of the infectious sick in tents, analogous to our modern hospitals.

But if the suspicious eruption, instead of staying, was found to have spread at the end of the seven days' isolation, this decided that the disease was true leprosy. The individual was consequently deemed *unclean*; was shut up and compelled to dwell *alone and without the camp* till the end of a second, and even if necessary till the expiry of a third period of seven days, lest he should infect others and spread the disease (Lev. xiii. 43-44). Moreover, as leprosy was regarded as a Divine infliction the individual was enjoined, in token of grief and humiliation, to rend his clothes, bare his head, put a cover on his upper lip, and cry aloud "unclean, unclean." The law of seclusion was very strict; nor was it applied only to the poor and working classes. Even Miriam was not exempted (Numb. xii. 15). Nor was King Uzziah (2 Kings xv. 5; 2 Chron. xxvi. 19-21). And this only because it was absolutely necessary to prevent the spread of infection and not for purely ceremonial reasons. For even in their crowded and busy camp, as subsequently in their cities, lepers could scarcely avoid contact with the non-leprous. And, for the same reason, as an additional safeguard, every person and thing a leper might touch was deemed unclean. And so in turn were all that these touched. This double safety was a wise rule that necessarily made the company of a leper undesirable and shunned. It is not certain whether or not Israelitish lepers were excluded from cities and towns in later times by law, as they were from the camp in the Wilderness. But even if not, they were objects of such aversion that they preferred to associate together outside the city gates (2 Kings vii. 3; Luke xvii. 12).

But beside these other important precautions were taken to quell this dire disease. For the garments of every leper, and also leper-tainted linen, woollens, or clothing made of skins, had also to be inspected by the Priest, because these are highly porous and thus both absorbent and retentive of disease germs. If these were doubtfully infected they were shut up for seven days and thus *isolated*. Then, if leprosy had not appeared, they had to be re-washed, and pronounced clean.

But, if leprous spots still appeared at the end of seven days they had to be shut up for seven days more; and then re-washed. If, after this purification and disinfection the spots had not changed colour, even if they had not spread, the garment was deemed incurably unclean and had to be *burnt*, that is completely destroyed with its contained infection. But if the suspected spot had darkened, the part so affected had to be rent out of the garment. After this removal, if the disease still re-appeared, the garment had to be burnt. Nothing better could have been devised for the early detection of infected and dangerous clothing than this periodic inspection and isolation. Nor for the complete annihilation of infection than the destruction by fire of the garment and its contained obnoxious contagious germs.

The ordeal did not end even with release from isolation. For the person had still to follow certain obligations of the "law of the leper" ere being allowed to re-enter the community. After inspection by the Priest a sacrifice was offered. This was typical of spiritual purity and also recorded gratitude for recovery. The person had then to shave his hair, wash his body and clothing with water. This removed effete body impurities and lurking disease germs. After this he might go into the camp; but not yet into his tent, to prevent very close contact with his friends, and thus prevent infective contamination. On the seventh day he had again to shave his head, beard and eyebrows; wash his body and clothing; to be considered perfectly clean, fit to enter his tent and mix with his family. If too poor to provide the requisite sacrifice, this was done for him; so that there might be no violation or evasion of the law, or any excuse for it.

Thomson tells us that this law of separation in loathsome diseases is still in force in some Eastern countries; where lepers are compelled to dwell outside the city in separate houses and even villages; leprosy being now more common there than during the Wanderings, a fact that points to the necessity for such a law as the Mosaic and the evil results of its imperfect fulfilment. Near the Gate of Zion in Jerusalem they have a village or quarter in which the hovels are not much better than dog-kennels, which no one is permitted to visit except those who carry their daily food. Those who are not compelled to live outside have a separate abode; and are shunned as unclean and dangerous. No sound person will touch them, their clothes or utensils. So also in the East leprous beggars never touch the passer-by but stand apart and cry "unclean, unclean." Among the tent-dwelling Arabs also lepers are put out of the camp: shewing that they firmly believe in its contagiousness.

The leprosy of those days, like the modern variety, and also

like cholera, typhus, typhoid, yellow fever, and indeed most of the modern contagious and infectious diseases, usually spread along the lines of human traffic and intercourse. Thus it was apt to extend from the individual to the household; from this to the tribe; from that to the general camp and community; and from this to become still more widespread. The Mosaic isolation, like the modern, was clearly not purely typical and ceremonial, though partly so, but meant to separate medically infected or suspected persons, houses, clothing, and things generally, in short, everything that had become "unclean" or infected, from contact with "clean," that is healthy and untainted people and non-infected articles; no chance being left of fraudulent, ignorant, careless or criminal evasion of the Divine command.

But lepers and other infected persons are apt to soil other things than their clothing, &c., *e.g.*, the room and house. Hence the rules laid down for the management of house leprosy are as minute and stringent as those for the human body (Lev. xiv. 33-34). When suspected only, the house had to be first emptied and then inspected by the Priest. If decidedly leprous it was shut up for seven days; at the end of which, if still decidedly leprous, it was shut up for seven days longer. At the expiry of this, if the disease had spread, the stones which were leprous had to be removed and cast into an unclean and therefore unfrequented spot without the city, and clean, fresh stones put in their place. The house had also to be scraped within and the dust put in an unclean place out of the city. The plaster thus removed had to be replaced by fresh, that is untainted mortar; doubtless because the mortar or other lining of a house, and even the stones or bricks of which it is built, are porous, absorbent of disease germs and other septic matters. After these minute precautions, if the plague returned, the house was considered incurably unclean, and had to be broken down, and its stones, bricks, timber, and mortar carried unto an unclean place out of the city. If, however, the plague had not spread after scraping, the house was deemed clean and once more fit for re-occupation, after due sacrificing and sprinkling according to the ceremonial law. These precautions were no doubt in a certain sense and degree figurative and tuitional of purity in all things. But who can doubt that they were mainly sanitary?

The great, incisive and comprehensive but highly necessary precaution of the Mosaic law of the leper is shewn by its extension, even to those persons who helped to cleanse a leper's house; doubtless because they might thus catch the disease and communicate it to others. Whoever lay, slept, or even ate in a lepers house had also to wash his clothes (Lev. xiv.

46-47). Even if a person merely entered a leprous tent or dwelling while it was shut up and isolated, he was deemed unclean till even.

The Jehovistic forethought and precaution for the living healthy public extended even to the disposal of the dead leper. At death these were buried apart from non-leprous bodies. This wise law was very strict. Even leprous kings, like Uzziah, were not permitted to be laid in the royal sepulchres (2 Chron. xxvi. 23; 2 Kings xv. 7). Modern experience tends to shew that the germs of some, if not all of these infections, all so very tenacious of life, and some far more than others, resist strongly even the germicidal influences of pure air, water, earth, &c. Thus the germs of splenic and perhaps yellow fever not only survive but possibly germinate and even attain fresh virulence in the soil where a body is buried. While from these may arise some of the new mysterious and fatal outbreaks and epidemics that now and then recur, to puzzle the sanitarians to account for. Had Moses an intuitive or Heaven-given knowledge of these facts; although unable to verify them? Is not the law of the leper to which his name is attached a wonderful forestalment of modern ideas and practice in advanced communities regarding the burial of human bodies infected by contagious or zymotic diseases generally?

These various commands included in the law of the leper none could evade: not even the notables of the congregation, such as Miriam, or the Priests. If the latter became leprous they were forbidden, under penalty of being cut off from God's presence to minister in holy things; or to eat of the shew-bread or sacrifices; and were deemed unclean like other Israelites (Lev. xxii. 4-6).

If we analyze these multiform Jehovistic precautions contained in the sanitary code for the treatment, especially the prevention of leprosy and infectious and contagious diseases generally among the early Hebrews, we find not only that they are most complete but also identical in their object and minutiæ with those of modern times, and also anticipative and a forecast of these, besides comprising the majority of the four great disease-preventive methods now spoken of, namely:—

1st. Immediate *notification* to and *inspection* by the Priests and sanitary action by these responsible persons in all, even in merely doubtful cases; including periodic, medical inspection of suspected persons, homes, servants, and personal property. These are hygienic methods for the induction of which moderns are apt to take special credit. But a perusal of the Pentateuch proves that they are far from new, and no less than over 3,000 years old, because plainly and

emphatically laid down there for certain diseases. These functions must have been very frequent among the early Hebrews, because ordained not for leprosy alone, an unfrequent ailment then, but also for other diseased conditions, especially issues.

2nd. Complete *separation* of the infected or suspected from their family, friends, public, and from everything belonging to these, not only during the disease, but till it had entirely gone, was a very prominent item, feature, and dogma of the Mosaic hygiene to prevent the spread of infectious or contagious diseases. Yet this procedure is often supposed to be, if not modern, at least to date back no further than the Middle Ages. Among the early Hebrews it was strictly enforced on all; not only on the laity, but also the Priests, Princes, and other notables, like Miriam (Numb. xii. 6). No evasion was permitted. Attempted disobedience was punishable; though no hint of how or how much is vouchsafed. But its infliction must have been very frequent, as it was applicable not only to lepers but also to other far more frequent conditions and diseases, *e.g.*, issues, childbirth, periods, &c. It was a matter of public moment: and had public, Priestly and Levitical officials to attend to it. Inferentially we may conclude it was applicable to contagious and infectious diseases generally. This Jehovistic innovation and new departure in disease; its prevention by isolation, first revealed in the Holy Scriptures, was ignored and despised, like the Book itself, for centuries The rationale of isolation is so simple and obvious that the wonder is it was not secularly thought of before. Every infectious or contagious case is practically a wholesale manufactory of new poison and fresh disease; a prolific focus of further danger that may become widespread and public. Whereas if isolated the disease dies out for lack of fresh victims. There can be little doubt that in these early Hebraic times isolation was accompanied by disinfection, another new departure in medicine traceable to Jehovistic teaching and Mosaic practice. The wisdom of the Divine inculcation of isolation in infectious and contagious diseases is obvious. Jehovah knew what mankind were so long in finding out, namely, the existence of infection and contagion; and at once settled the point by devising a simple and obvious remedy. Isolation of the patient is a mode of preventing altogether, or, failing that, of lessening the

spread of infectious and contagious diseases: and thus of ultimately crushing, eliminating and stamping them out if the plan could be effectually carried out. The great wonder is that Bible teaching should have been so long ignored or deemed obsolete, antiquated, solely Jewish, and meant for leprosy alone, a disease often popularly supposed to be extinct or typical. For centuries we would have none of Jehovah's advice in this, as in other matters.

The Hebrew code put two kinds of isolation in force:—

a Camp isolation, which involved associating, working, eating, and sleeping, apart from their fellow creatures, even in the tent or house. This was for the mild, non-infectious or suspected cases and conditions, *e.g.*, pollutions, childbirth, periods, &c.

b Extra camp isolation; which involved complete separation from relatives, friends, fellow-men and camp; and association only or mainly with such as were afflicted like themselves. This was for the more severe, intractable or incurable infectious or contagious diseases, such as leprosy, &c.

Of each of these again there were evidently two varieties. For example, of those in the camp there was:—

c The minor, temporary and brief isolation for mild cases; such as the periods, pollutions, &c.; and

d The major and longer for more severe cases, *e.g.*, aggravated issues, childbirth, &c.

So extra-camp isolation involved:—

e The brief and minor for mild, curable cases of leprosy, &c., and

f The major and longer or permanent, for incurable, leprosy, &c. (Numb. v. 2-3).

Isolation of the suspected or the ailing was a sequel to compulsory and legal inspection by the Priest-physician, who determined the disease, length of isolation, and its locality. To isolate the infected individual from the healthy family, tribe, and camp really amounted to a special form of cleanliness. As a rule the isolation was accompanied by compulsory cleanliness, washing of the body, clothing, &c., both of them of supreme sanitary import. Periodically, usually every seventh day, patients were re-inspected; and the isolation, washing of body and clothing continued. This was no doubt repeated till the case died or was cured. Then, in the latter event, a final washing of body and clothing, with the usual ceremonial sacrifices, completed the cure and renewed the social freedom. We may also legitimately surmise that the whole ordeal was accompanied by the appropriate medical or surgical treatment of that

day. In addition to the diminished danger of infection and contagion conferred by isolation, the community had another, namely, the personal appearance and conduct of the leper: who was condemned by law to let every person he approached or who approached him know that he was afflicted, and that possible contact was dangerous. Under such circumstances the leper was compelled to cry "unclean, unclean": which would attract instant attention and care by unsuspicious passers-by. This procedure is surely much in advance of modern hygienic methods, which often permits convalescents from infectious and contagious diseases, *e.g.*, variola, scarlatina, diphtheria, &c., to mingle during desquamation with their fellow-creatures in the street, mart, Tabernacle, or public conveyance; and thus aids the spread and continuance of the disease.

The objects of isolation, like all else forming part of the Mosaic Hygiene, were beneficent and included:—

1st. And mainly hygienic and disease-preventive.

a To separate the ailing from the sound and prevent the healthy being infected.

b To diminish the number of patients and thus reduce the foci of new disease.

c To endeavour to obliterate the entire disease by curing and blotting out the foci.

d To give the physicians a better chance of effecting the beneficent and hygienic objects of their mission and life work.

2nd. Ceremonial and typical.

a To remove impurity, pollution, and "uncleanness" from the camp in which Jehovah had His abode (Deut. xxiii. 14).

b To typify *soul* purity and cleanliness by the physical cleansings of the *body*, its coverings and belongings.

The diseases, conditions or circumstances for which isolation was ordained by the Sinaitic code are given in one of the columns of a following table, so that it is only necessary to give examples here.

Camp Isolation	Short isolation (till even)	As for touching unclean things as a creeping animal (Lev. xxii. 5); unclean persons (Lev. xv. 5) or things (Lev. xv. 9) or for touching one having an issue (Lev. xvi. 27); or a pollution (Lev. xv. 16)
	Long isolation (1 to 11 weeks)	As after child birth (Lev. xii. 4-5) Female issues (Lev. xv. 25) Impurity from touching a dead body (Num. v. 2)
Extra-Camp Isolation	Short isolation (7 to 14 days)	Mild curable leprosy (Num. xii. 15) Suspected leprosy (Lev. xiii. 6) Scall scab or non leprous skin diseases (Lev. xiii. 6)
	Long ditto (permanent)	Incurable leprosy (Lev. xiii. 46)

It seems an unavoidable conclusion that obedience to many of the minor Mosaic inculcations regarding washing of the body, clothing, utensils, &c., must of necessity have been left largely to the conscience and honour of the individual, *e.g.*, after childbirth, the periods, pollutions, touching dead bodies, and unclean things, &c.: especially as most of these are ordained for conditions inseperable from and often a sign of the best health in the Desert as well as in Judea. Camp isolation, probably only involved isolation in the tent or home; and resembled our modern "a mensa et thoro," from bed and board.

The ailments and circumstances under which notification, inspection and isolation were made compulsory by the Mosaic law were:—

1st. For leprosy; for which the Pentateuch says, "he shall be brought unto Aaron the Priest or unto one of his sons, the Priests" (Lev. xiii. 2); for primary decision as to its nature. And subsequently they had to inspect their patients "out of the camp" (Lev. xiv. 3); and there re-inspect as often as the isolation was renewed; and also before dismissal when cured.

2nd. So of garment leprosy; "It shall be shewed unto the Priest" (Lev. xiii. 49) for his decision as to its real or pseudo nature and the necessity or not for isolation.

3rd. So with house leprosy; "he that owneth the house shall come and tell the Priest, &c." (Lev. xiv. 35) for decision. So also of inspection before it was pronounced clean (Lev. xiv. 48).

4th. Issues, &c. In these notification and inspection by the Priest-physician is not distinctly mentioned as it is for leprosy. But yet *isolation* was ordained for seven days (Lev. xv. 19); and we may fairly conclude that to this the former was a prelude that the full law might be carried out; as the text runs "she *shall* be put apart." This was compulsory not optional: as faithful compliance could not have been invariably left to the person concerned, as it might often have been evaded. The Priest-physician decided on the necessity for isolation and its length. Issues, male and female, sanguineous and not, were frequent then as now; the community was large; not very favourably situated for excessive cleanliness; and some of these ailments communicate disease by contagion. So that for these alone their physicians must often have been kept busy inspecting. To say nothing of other conditions. For the same rule applies to all other diseases

and physiological states for which isolation was ordered, whether in the tent or beyond the camp; and for longer periods than that for which isolation is most frequently mentioned, namely "till even." These conditions or states, necessitating notification and isolation, if not inspection, were childbirth, periods, pollutions, &c. In some diseases and conditions, such as leprosy, notification of which was followed by isolation, perhaps in its longest form, the notification and inspection were compulsory and non-evasive. Punishment of some kind doubtless followed ascertained disobedience. But we have no means of knowing whether or not the isolation enforced during certain other conditions, *e.g.*, childbirth, pollutions, periods, &c., required compulsory notification and inspection to the Priest, or was voluntary, and left to the patient's honour.

The evident objects of this notification and inspection were:—

1st. To decide early and at once by a qualified and authorized individual, the nature of the disease; and as to its contagiousness or infectious nature; whether isolation was or was not required; the length and nature of this; and in camp or beyond it.

2nd. If non-infectious and non-contagious it relieved the minds of the patient and friends regarding him, and the fear of infection.

3rd. If contagious, the publicity and consequent early isolation from the healthy minimized or saved the patient's family, tribe and camp from the spread of fresh disease.

4th. It assured the patient and his relatives of early and proper care and treatment and saved him and his relatives from the grave and criminal mistake of disease concealment.

5th. It gave the physician the best chance of successfully combating the disease after the wise law and medical aphorism "obsta principiis," oppose the beginnings and earliest stages of diseases; a rule evidently fully endorsed by the Divine Physician and Hygeist.

6th. Notification and inspection of leprosy-infected or suspected garments (Lev. xiii. 49), and houses (Lev. xiv. 35) gave the same personal and public benefits as that for leprous persons and were eminently judicious. Disregard was doubtless punitive by law.

Among these early Hebrews there was little chance or desire for evading notification and inspection of contagious

diseases. Because every person in the camp knew its importance and imperativeness, and every individual helped what was so manifestly a public benefit. And with all, laity, leaders, Priests, Levites, and Princes, it was a matter of conscience, religion, and Godly obedience, because ordained by Jehovah, whose symbol was their ever-present pillar of cloud and flame, to disobey whom they knew would assuredly lead to disaster. Obedience to this law was as necessary as to the Decalogue. Neither might Priest or people evade their duty on any pretence, especially laziness, carelessness, or lack of zeal. There can be little doubt that, in accordance with the prevailing medical custom of that day, especially in Egypt, where medicine was most advanced; from whence the Hebrews hailed; and from whose Priests Moses obtained his elementary medical knowledge, there were medical specialists among the Hebrew Priests or Levites for the diseases and conditions mentioned in the Mosaic hygiene. Men like Bezaleel and Aholiab in the physical arts, selected and heaven-aided by special aptitude for medical studies; tutored by Moses; and fired with zeal in service and work that was truly Divine. The medical inspectors possibly had a special tent, office or station in the camp for non-contagious ailments and another out of the camp for infectious and isolated ailments, such as leprosy (Lev. xiv. 3). Perchance they had these for each tribe or for each of the four-sided group of tribes. And also fixed daily times for inspection. System, method, and regularity had to prevail; for the camp was wide and included over two millions of souls. Levitical aid would evidently be as necessary in this as in the sacrificial duties of the camp. This work alone, superadded to other functions, ceremonial and legal, was probably enough to overwhelm both Moses and the Priests, notwithstanding their zeal and ability (Heb. iv. 16; Numb. xi. 15); especially as contact with infectious and contagious diseases involved undesirable isolation, disinfecton, washings, &c., as annoying and irksome when thus incurred to Priests as to laymen. The Priestly functions were thus not altogether ceremonial and connected with the Tabernacle and its sacrifices and worship: they were also practically and didactically sanitary for the public weal.

These twin and allied sanitary measures are followed at the present day and in the compulsory form to most of the contagious and infectious diseases that now afflict us even in sanitarily enlightened countries; and with the best results, namely, the curtailment and lessening of the most prevalent, deadly and dreaded epidemic diseases. If all would aid and join in the project these would ultimately be stamped out. This is a comparatively recent medical innovation and unknown in secular medicine till within the past quarter of a century. So that

clearly in this also we have been forestalled by over three thousand years and by the Mosaic code in which they form a prominent and integral item and feature, frequently repeated to shew their importance in the sight of the Divine Hygeist. Unfortunately for humankind and in disregard of law, thus both human and Divine, not a few modern infections and semi-pathological states are unwisely, nay, criminally, concealed and thereby spread to others by contact, *e.g.*, syphilis, gonorrhœa, gleet, leucorrhœa, cancer, &c. And doubtless, but for this wise law of old it would have been the same in early Mosaic times for corresponding ailments, with similar untoward results. Would not its more free and full application therefore be highly judicious as one of the most potent hygienic agents of modern times. As an example, from how much disease in both sexes, in all classes of life and in almost every clime, has what is being termed the Contagious Diseases Act, saved both the civilized and the savage and semi-savage portions of the human race, it would be hard to estimate. Nor could greater folly have been committed than its annulment. The concensus of medical advice is for the full and free continuance of notification and inspection, and if necessary, further communal and state control of this and all other infectious and contagious diseases. If the public were wise they would endorse and aid their medical advisers by willing and thorough obedience on this point.

In the Desert the Hebrews were miraculously preserved from disease, contagious included, except when they rebelled; only one case of isolation for leprosy being recorded, namely Miriam (Numb. xii. 10). But the law was anticipative for Judea, as well as inclusive of other infectious diseases. Their isolation was not always of the same length; but only as long as the disease required. It was thus better than the inflexible 40 days of the Middle Ages. But still Bible custom clearly fully endorses our more modern procedure of an elastic mode of isolation, and anticipated it.

Would it not be well for modern mankind generally; and likely to materially preserve health and prevent much disease, if rules after the Mosaic pattern were more frequently and closely followed than they now are for the identical diseases and semi-pathological or physiological conditions mentioned in the Sinaitic law; and unquestionably more prevalent now than then in proportion to the vastly increased population. This neglect arises perhaps mainly from want of knowledge and the idea that these Mosaic rules are obsolete, antiquated, meant only for the Hebrews and the Wilderness; while their authentic Divine truth and perennial nature are forgotten. The hygienic and preventive aspects of isolation and its absolute importance both in voluntary and compulsory forms, in the management of re-

crudescent modern leprosy; as well as in the entire numerous catalogue of modern infectious and contagious diseases is well established in medical minds and as a rule well acted up to by the public.

Isolation of leprous *garments* (whatever that meant) was equally compulsory; evidently for a sanitary and preventive purpose as well as a typical one. With our present day knowledge of infection and contagion, and of the multiform microscopic disease-producing world of minute vegetable life, we now perceive why, though doubtless the early Hebrew public were unaware, and obeyed the law blindly in faith as we still do other laws; and later ages were equally ignorant, up to the present century. According to the law of Sinai, if a linen or woollen garment or anything made of skin was leprous or suspected after notification by the owner and inspection by the Priest, it was "shut up," that is isolated, for seven days, then re-inspected, again isolated seven days more if necessary. And so till found "clean," free from the plague, and after being twice washed, sanitarily and ceremonially, it might be again worn; or so bad as to require part to be rent out; or so incurably leprous and dangerous that destruction by fire of the garment and its contained infection was the only remedy (Lev. xiii. 49-59). This Hebraic law was doubtless inferentially meant to apply to garments in all infectious and contagious diseases. A similar procedure is now followed regarding not only leprous but all other infected clothing. But here again the Holy Scriptures claim priority of practice in Mosaic times.

Isolation of leprous *houses* (whatever they may have meant) was also compulsory by the Sinaitic law if so ordered by the Inspector Priest (Lev. xiv. 35-36); because it was leprous in its walls and therefore likely to transmit leprosy and infect fresh victims, thus becoming a public danger. Then it had to be shut up for seven days (Lev. xiv. 38); again Priest-inspected. If the leprosy continued or had spread, the isolation was repeated until the house was deemed "clean" by the Priest (Lev. xiv. 48); or had become so bad as to require scraping of its leprous stones and plaster, or their removal out of the city and renewal (Lev. xiv. 41), or so incurably infected as to require its complete demolition and removal of its stones, timber, and mortar out of the city to an unfrequented place where few or none went, and there was thus least danger of infection of new cases (Lev. xiv. 45). Moreover, entering, eating, or sleeping in a leprous-stricken house made an individual ceremonially and sanitarily unclean "till even" and involved washing of his clothing and certain sacrifices (Lev. xiv. 47-53). These rules were no doubt hygienically preventive of infection and contagion. They were anticipative of their residence of Judea and also

inferentially applicable to all infectious and contagious ailments. All of these ancient Hebraic sanitary procedures are now followed by us in cases of many modern infectious and contagious diseases, either unchanged or only modified in type from theirs. But the Holy Scriptures were thus the first to practice and Jehovah to legalize and inculcate their wisdom centuries ago; while we are only beginning to see the truth and to realize that Biblical medical suggestions are never antiquated but ever new and perennial.

3rd. Disinfection of various kinds of the patient's body, clothes, bedding, and other effects before again using them and of his room and dwelling before again occupying them; played a very prominent part in the Hebraic sanitary treatment and prevention of infectious and contagious diseases, notably leprosy. Traces of this are met with now and again in the medical history of the Middle Ages. Still it is supposed to be a conception and procedure of modern and indeed 20th Century date, at least in its widespread and thorough form. But we find it fully and even minutely carried out by the Sinaitic code over 3,000 years ago. The different methods employed being:—

a *Physical dispersal*: this was indirect disinfection, by which the infectious and contagious germs were carried away, scattered and put in the most unfrequented places along with the debris of the infected articles to which they clung. This minimized the chance of their creating new foci of disease. This was employed mainly in house leprosy. If decidedly infected the Priest ordered the leprous stones to be removed and cast into an "unclean" place out of the city (Lev. xiv. 40). The house (rooms) had also to be scraped within and the resulting dust similarly dealt with (Lev. xiv. 41). The stones and mortar so removed had to be replaced by fresh, *i.e.*, "clean" (Lev. xiv. 42). If the leprous plague re-appeared in spite of this removal and replastering, the entire house had to be broken down, its stones, timber, and mortar removed to an "unclean" place out of the city (Lev. xiv. 45), *i.e.*, an unfrequented spot where the elements of rain, wind, sun, &c., would sterilize the germs and where these would be least likely to come in contact with susceptible humanity. This is

exactly what would now be done with houses deeply or incurably tainted with small-pox, diphtheria, scarlatina, yellow fever, &c.; we remove and replace the paper, plaster, paint, furniture, &c.; or with ships like the "Eclair," so steeped with yellow fever as to be publicly dangerous; and required total destruction. But here again modern sanitation is anticipated by the Bible prescience, precepts, and practice of centuries ago.

b *Burning* or destruction by fire, which completely devitalized disintegrated, obliterated and dispersed disease germs as such, and reduced them to their original innocuous non-pathogenic, chemical elements, was unquestionably the most thorough that could be devised. This was employed for diseased, leprous or infected garments. Thus if a garment was found to be incurably leprous, even after isolation and removal of the leprous portion (Lev. xiii. 56) it had to be burnt, and with it the lurking, active and spreading germs (Lev. xiii. 52; Lev. xiii. 55; Lev. xiii. 57). In modern days we would probably disinfect infected garments, bedding, &c., by heat and chemical disinfectants. But failing these, we would burn them as the Hebrews did; and so here again Scripture advice anticipates modern science and practice. The burning of sacrificial refuse (entrails, fat, flesh, skin, horns, hoofs, &c.) after removal beyond the camp was a wise caution to aid in preventing infectious and contagious diseases, by permitting no new nidus to be formed for the cultivation of disease germs in putrefying animal and vegetable matters (Camp, Chap. 20; Cleanliness, Chap. 28). Some modern sanitarians propose to completely destroy infectious and contagious germs and disease by cremating the bodies, clothing, and belongings of such as die from communicable diseases. But the disfavour of the majority makes this a difficult procedure to carry into full effect by making it a compulsory and public law.

c *Washing and cleansing* with water, as the Hebrews did, was mainly another form of

dispersal of hidden and clinging disease germs, which were thus scattered and carried to where they were least dangerous or innocuous, and perhaps sterilized by the cosmical elements, air, water, earth, ozone, &c. The numerous washings and cleansings of the body, clothing, and belongings imposed for ceremonial, punitive and other purposes by the Mosaic law, extended to disease, and especially leprosy and other infectious and contagious conditions and diseases. These not only cleansed the disease-stricken body but carried away the lurking germs it was constantly manufacturing and throwing off to the public danger, to where they would be least likely to re-infect fresh cases. Washing alone was eminently hygienic and disinfectant in infectious and contagious disease. In modern times we would possibly combine the physical washing with chemical disinfectants. But washing away infection and contagion is clearly not modern but of Mosaic date. It was typical and ceremonial, but also eminently sanitary for this large class of diseases: and usually combined with isolation; and before return to his family and camp.

d Disinfection proper, which consists in preventing infectious and contagious diseases by the judicious use of solid, liquid or gaseous chemicals, which sterilize, poison, or kill the disease germs that are the true cause of the ailments, by permeating the air we breathe, water we drink, soil we live on, and every other medium in which they lurk and live, usually all unknown to our gross senses and unseen by our gross eyes. Those used by the Hebrews in their ceremonial, partly for typical and partly for sanitary purposes, were chiefly of a vegetable nature (Chap. 19); oils and balsams, mixed after Jehovistic methods and advice into the forms of the Holy Incense, kept constantly burning in the Golden Censer; and the Holy Anointing Oil used for the Priesthood. These, combined by constant use of the former and occasional use of the latter, to odorize and

disinfect by permeating everything around, the Tabernacle, its hangings, coverings, the Priests, Levites, and worshippers and their clothing, and the entire camp and congregation to which the odour was conveyed by these and by the winds. Thus were the people and their belongings more or less continuously disinfected by these persistent and clinging odours; that is dealt with so that disease germs and microbes, however they lurked, could find no suitable nidus or soil free from toxic smell, in which to favourably settle and develop to breed new disease. At the present day we excel in the multiplicity of chemical disinfectants, many however of still indeterminate relative and intrinsic value; and also in the uncertainty as to whether they are better or even so good as the Jehovistically chosen ones, although recent research seems to assert that the latter are the strongest, safest, and thus still the best; and, if so, proving that the all-knowing Creator of these disease-preventing chemicals is not only, as we should expect, the wisest and best selector, but has also beneficently pointed out in His suggestions and Hebraic commands the direction in which our human and therefore fallible researches should turn for further information. It is chiefly in the advancement of disease-prevention and disease cure, medical, surgical, obstetrical, and gynæcological that Lord Lister has effected such signal service to modern humanity, as to deserve world-wide recognition and public gratitude.

The following table indicates the physiological and pathological conditions during and for which these restrictions, namely, inspection, isolation, and purification, one or all, were enjoined by the Mosaic law, and strictly enforced, as with all the other Sinaitic enactments. These laws to the medical mind were clearly preventive of further trouble or disease. And were meant not only for Desert use but were also and perhaps mainly inculcative of the fundamental law of hygiene, namely, cleanliness, but also anticipative for Judea, where the Hebrews would be more scattered, less under Priestly control, medical aid, and teaching, and more inconstant, irreligious, rebellious,

and law-breaking. All this was foreseen by Jehovah. Would not the natural desire to evade the troublesome penalties inseparable from disobedience, whether the law infraction was involuntary, unwittingly or even wilfully committed, tend to prevent secondary bodily disease in the case of these bodily conditions mentioned in Table 34; as it would also the spiritual, moral and social debasements and penalties in the case of the second series of isolations mentioned in Table 35, inflicted for other infractions of the Mosaic law. No sin was so heinous as that of disobedience of the law and of the Priests who applied it; because it was an insult to the Supreme who codified the law, and a wrong to the entire congregation for whose benefit the law throughout was made and revealed (Deut. viii. 2).

TABLE XXXIV

Conditions, Diseases, &c., where actual or presumptive Notification, Inspection, Isolation, and Disinfection were ordained by the Sinaitic Law

Conditions	Reference	Notification and Inspection	Isolation	Purification and Disinfection	Nature of this
Child birth (male)	Lev. xii. 2-4	*	7 days and 33	*	Cleanliness
ditto (female)	Lev. xii. 5	*	7 days and 66	*	ditto
Leprosy (suspected)	Lev. xiii. 1-8	Lev. xiii. 1-8	7-14-21 days	Lev. xiii. 6	Washing body and clothes
ditto (curable)	Lev. xiv. 8	Lev. xiv. 8	7 days	Lev. xiv. 8	Washing and shaving body and clothes
ditto (incurable)	Lev. xiii. 11	Lev. xiii. 11	perpetual ex-camp	Lev. xiv. 9	ditto
ditto (of garments)	Lev. xiii. 47	Lev. xiii. 47	7-14 days	Lev. xiii. 54-7	Washing; partial removal or burning
ditto (house)	Lev. xiv. 34	Lev. xiv. 35	7 days	Lev. xiv. 36-45	Cleansing; renewal of stones Scraping; destruction of house
Running issue (male)	Lev. xv. 2	*	till cured	Lev. xv. 2	Washing body and clothes
ditto (on recovery)	Lev. xv. 13	*	7 days	Lev. xv. 13	ditto ditto
Emission	Lev. xv. 16	*	out of camp	Lev. xv. 16	ditto ditto
(male)	Deut. xxiii. 10		till even	Deut. xxiii. 10	
Issue (female periods)	Lev. xv. 19	*	7 days or till cured	*	
ditto (on cure)	Lev. xv. 28	Lev. xv. 30	7 days	*	
Sexual Congress	Lev. xv. 18	*	till even	Lev. xv. 18	Bathing body

Thes laws are clearly mainly sanitary and preventive of further disease; but, as in all else in the Hebrew Dispensation, they have an underlying, typical, ceremonial and religious substratum. The asterisk indicates where the notification and inspection are not expressly mentioned but are inferential.

The following table are cases requiring isolation of a still deeper type, in which Hebrews were "cut off" from their fellows and from all physical, social, and spiritual intercourse with them. This implied and involved the very worst form of segregation, that which would be most dreaded, most avoided, and the influence of which would be most preventive of repetition of the fault and the "uncleanness" which this involved, because it banished the culprit from tent, camp, and Tabernacle; thus practically disenfranchising and making him an alien and outcast. These were all of a more ceremonial and typical class than those in Table 34. Some of them were purely typical, as sprinkling and touching the water of separation, soldiers after battle, &c., but the majority, as pointed out in another chapter, 16, had a sanitary and disease-preventive rôle to play. They are not for disease, as in Table 34, but connected with the moral, physical, spiritual, and social duties.

TABLE XXXV

Of Aberrations of the law which resulted in being "cut off" from the Congregation, &c.

Condition	Reference	Notification and inspection	Isolation	Purification and Disinfection	Nature of this
Eating animals died of themselves	Lev. xvii. 15	*	till even	Lev. xvii. 15	Washing body and clothes
Eating flesh torn with beasts	Lev. xvii. 15	*	till even	Lev. xvii. 15	do. do.
Gathering ashes of Red Heifer	Num. xix. 10	*	do.	Lev. xix. 10	Washing of clothes
Touching a dead body	Num. xix. 11-13	*	7 days	Lev. xix.	do. body
Touching a body slain by sword in field	Num. xix. 16	*	do.	Num. xix. 18	Wash clothes and body on 3rd and 7th day
Touching a bone	Num. xix. 18	*	do.	do.	do. do. do.
Touching a grave	do.	*	do.	Num. xix. 19	do. do. do.
Touching water of separation	Num. xix. 21	*	till even		
Sprinkler of the water of separation	do.	*	do.	Num. xix. 21	Wash clothes
Who touches an unclean person	Num. xix. 22	*	till even	Num. xix. 22	
Killing a person in battle	Num. xxxi. 19	*	3rd and 7th day	Num. xxxi. 19-20	Purify themselves and clothes
Touching slain in battle	do.	*	do.	do.	do. do.
Soldiers after battle	Num. xxxi. 24	*	7 days	do.	Wash clothes

The law and penalties incurred in both tables were clearly preventive of disease; in Table 34 mainly of body disease; and in Table 35 mainly of disobedience to God, *i.e.*, sin, *i.e.*, soul disease. All were tuitional. In both the disagreeable and dreaded punishments and penalties made their infraction to be avoided if possible. They were all spiritually, morally, socially and bodily sanitary. Some of the conditions were avoidable and others unavoidable. They included wilful, unwitting, accidental and necessary breaches of the law. But all taught human purity, holiness and obedience. Thus to illustrate: would not the isolation and purification enforced after childbirth, issues, leprosy, &c., tend, besides aiding the care of the person, to prevent body disease in others? Again, would not dread of the penalties enjoined in Table 35, say for touching a dead body, grave, bone, eating torn flesh, &c., tend to prevent not only body disease, but of more importance, the spiritual disease or sin of rebellion against Jehovah and His ordained laws, all of them beneficent and humanly educational and elevating, though not, perhaps, apparently so to us? The asterisks in both tables shew where the notification and inspection are not explicitly laid down in the written law, but is inferential.

In addition to these in which isolation is specially or inferentially enforced, it is clear that many more cases of practical isolation were constantly occurring in the large Hebrew camp. Thus in all persons, male and female, who had become ceremonially "unclean," and were thus practically isolated from their kin and fellow creatures till the uncleanness was ended, *e.g.*, Lev. ii. 24, for one example out of many. All these were also physically and spiritually, socially and morally, educational in hygienics and indicative of the interdependence and close relation of the two. Nor must it be forgotten that spiritual, moral and social sin-diseases are oft as infectious and contagious as body ailments we so much dread.

e *Public cleanliness*, persistent, minute, and allied with personal purity, was another great aid to prevent infectious and contagious disease, such as leprosy, &c., &c. (see Camp, Chap. 20, and Cleanliness, Chap. 28). This public cleanliness included strict non-deposit by the large and widespread congregation of all objectionable, putrefactive, and germ-breeding matter, solid and fluid, in the precincts of the camp. And also the instant or speedy removal of the nearly as dangerous sacrificial debris by the Priest and their aiding Levites. These

precautions no doubt contributed greatly to the most important object of disease prevention, and, though largely typical, were obviously mainly sanitary.

f The reading and teaching of the law systematically and the resulting minute knowledge of theoretical hygienic matters; combined with their strict enforcement on all would strengthen the Divine and Mosaic hands materially in preventing disease, by creating a willing (Deut. xvii. 12; xii. 8) obedience to rules so obviously both of individual and public benefit and a national boon (Lev. xiv. 57). This teaching of the Jehovistic law of hygiene (Deut. v. 4) devolved not only on Moses (Ex. xviii. 16; Ex. xxxiv. 32; Deut. iv. 8); but also on the Priests (Deut. xvii. 9); as well as on the Levites (Deut. xvii. 11); and the elders (Numb. xi. 17); and rulers (Deut. i. 13; xxxi. 28); and also the parents (Deut. iv. 9-10; xi. 19; vi. 7; xxxii. 46); and judges (Deut. xvii. 9).

g The disposal of the infected dead. The compulsory burial of leprous bodies beyond the camp, which formed part of the Sinaitic law given over three thousand years ago, was wise in the same direction; although a procedure that modern times do not yet fully accept. For by interment in inhabited precincts, in camp or city, the air, soil, and water might have become germ-poisoned and infectious or contagious diseases thereby spread and perpetuated. Would it not be wise if either this or cremation were now made compulsory for the same object with the bodies of those dead from modern communicable diseases, such as small-pox, diphtheria, phthisis, &c.? By the Hebrew law no one was exempt. Even leprous, that is infected, kings and notables were so dealt with (Lev. xiii. 46; Numb. xii. 15; 2 Chron. xxvi. 19-21; 2 Kings vii. 3; Luke xvii. 12). Rank and wealth could neither claim nor purchase exemption. This matter is clearly one worthy of the serious public consideration now being given to it. It is only within the past few years that this subject, so long

ago written about by Moses, has been taken up by sanitarians. Research shews that cattle and sheep may contract that very infectious and fatal disease, charbon, by swallowing its germs with the luxuriant grass that grows over the buried carcases of animals that have died of this disease. Are not human beings subject to a like danger in indirect ways? Investigation has shewn that a similar danger follows interments of yellow fever. Possibly it may prove that typhoid, scarlatina, diphtheria, cholera, perhaps one and all of the modern infectious and contagious diseases may similarly spread by the dissemination thus of their hardy microbic germs through the soil and the superincumbent atmosphere. Moreover, certain volatile alkaloids are also engendered by the chemico-physiological life action of microbes upon certain organic substances. The single or combined influence of these insanitary agents; the living microbes that may beget contagion or infection, and the morbific alkaloids that may poison the blood and body of the individual they attack, if inhaled with the breath taken by the water or food or absorbed by the skin, combine to make the environment of cemeteries, especially those where contagion or infection-laden bodies are buried dangerous to the living: and the exhumation of bodies long buried equally so. This points to the necessity for burying the dead at a distance from living centres; also for disturbing graveyards subsequently as little as possible; as well as for having special, distant and carefully guarded burial grounds for infectious and contagious ailments; and lastly for impartially and non-sentimentally considering the question of the advisability of cremating the bodies of infectious and contagious dead, and thereby completely destroying the disease-generating microbes that may ultimately germinate so and spread in the soil and rise towards its surface to endanger living humanity. All of these valuable hints, deductions, inferences and sanitary truths, now slowly dawning on

the modern medical mind was clearly given, and no doubt with an intentional tuitional purpose, in the Holy Scriptures ages ago.

For more reasons than that they are anticipative of modern hygienic theory and practice by many centuries. The Sinaitic rules regarding house leprosy are worthy of special attention; because to many non-medical minds, even in the present enlightened but sanitarily ignorant era, the idea of houses and other physical things being in any way connected with disease or responsible for its generation and spread may be deemed frivolity. The house-leprosy here spoken of may have been some special infectious or contagious condition in the house itself, its stones, walls, wood or plaster; but it no doubt includes houses which have been made infectious or contagious by the presence of communicable disease, leprous or otherwise. Not till within a comparatively recent date has it been generally recognised that the walls, ceilings and floors of buildings are permeable by gases, vapours, liquids, and even by finely divided solids, presumably therefore by microscopic bacteria. Moercher and Berthold's experiments prove that brick and sandstone are easily penetrated by gases, especially carbonic acid. And that dense and compact hand-made bricks, even if strongly burnt, and also mortar are very porous. Pettenkofer has shewn that common illuminating gas can be forced through solid stone, even granite, so as to burn on the other side. Gases pass easily through brick without any extra pressure. Water and watery vapour pass readily through walls. And a dry house is one in which the vapour generated inside passes out most readily. Odours also pass readily; that of a skunk, for example, has penetrated a solid wall of masonry two and a half feet thick in fifteen minutes, and remained for two years. So also the odour of cancer will cling to a closet in spite of scrupulous cleanliness, whitewashing and papering. In this manner the carbonic acid, sulphuretted hydrogen and other gases and vapours from the secretions and excretions of the human body in health, and more especially in sickness, may be concentrated in the walls so as to prove detrimental. In like manner the walls and especially the paper, woodwork, and plaster of private dwellings and public hospitals, &c., may by absorbing and concentrating microscopic disease germs, contribute, unless properly cleansed, to the spread of small-pox, typhus fever, erysipelas, puerperal fever, and other infectious and contagious ailments; and that so long as they remain there we are never safe from a fresh outbreak. Yet this fact was long since inferentially and indirectly yet clearly pointed out in the Pentateuch (Lev. xiv.): and proper means for dealing with it likewise suggested. The modern practice, where there is danger of infec-

tion is often to cover the plaster or paper by fresh layers; which only cloaks the filth and danger-laden dust; but does not destroy or sterilize the disease germs. Moreover, how often we are unwilling to recognise or to act upon the belief that the complete destruction and removal of most of our foul polluted and fever haunted city houses would be a wise and justifiable sanitary proceeding that Scripture would endorse. Again, even now, notwithstanding our present advanced sanitary knowledge and the light which the microscope has thrown upon it, the benefit of small "cottage hospitals" of wood, brick, or iron, first suggested by Sir Jas. Y. Simpson in 1848 for the safer treatment of infectious and contagious diseases, is not so fully and widely recognised as it ought to be, seeing that one of their chief advantages is, that they may be burnt and cheaply reconstructed every few years, or easily disinfected if iron, when necessary; and the disease germs, so very tenacious of life and venom, so subtle, and easily overlooked, be thus periodically destroyed in the most effectual way, namely, by dispersion, disinfection, or fire. Yet it is by strong heat and especially fire that the bacteric germs of many fatal, frequent, and widespread diseases; and notably those of the infectious and contagious class, like leprosy, if not solely, are at least soonest and most surely killed; no matter whether these lurk in the air, food, drink, soil or in other things. No other germicide is so trustworthy as the Biblically suggested agent, fire; as it implies and includes complete disintegration, reduction, and conversion into other innocuous compounds or into the original chemical elements, of the peccant germs.

The very pertinent and highly important suggestive value of the facts revealed in the Pentateuch regarding house leprosy will be apparent; namely that the mould and discolourations which so often begin and accumulate on the outer or inner walls of houses, cellars, and damp, unsunned places and things is not only a real entity but one of great danger to individual and public health and life: because we therefore inferentially learn that the air and atmospheric moisture by and in which these microscopic vegetable germs are originated, nursed, carried about to find a suitable nidus and life environment, if frequently or persistently breathed by individuals are apt to do the same to the human air passages as they do to the plaster, stones, whitewash, or paperings, and find in too many instances a suitable nidus in which to germinate and develop disease, either in the lungs themselves or by penetration into the blood in many other parts of the body. The day is not very far distant when these "fungi" were ignored, despised and deemed innocuous. Now, however, we think differently, and fully endorse and professionally approve the Scriptural health hint bequeathed in

Mosaic days, to disperse the medical and hygienic darkness of those early periods on this point. The rules here given were sometimes used singly but oftener in concert. And by them communicable diseases, such as leprosy, prevented from transmission from sick persons outside to healthy ones inside the camp, either by contagion, that is direct contact with the diseased person or his belongings or by indirect infection by contaminated air, water, or food. By them also other communicable diseases, that no doubt decimated ancient races as they now do modern ones, might also have been minimized.

To this law, as to all other parts of the Sinaitic code, the Hebrews gave a blind and unquestioning obedience, awed as they ever were by the dark or fiery cloud over the Tabernacle; not yet forgetful of Sinai, its voices and thunderings: and doubtless deeming it purely ceremonial, all unaware or semi-ignorant of its sanitary bearings. Up to the present century these laws have been similarly regarded and deemed antiquated, obsolete, only Hebraic, meant for early times alone, solely of archæological interest, and valuable but as an early incident and period of human history. But in the light of the last half of the current century their wisdom, forethought, and high claims as sanitary agents, and eminently preventive of infectious and contagious diseases must be fully acceded. Nor can the Scriptural injunctions regarding notification, inspection, isolation, disinfection, &c., &c., in infectious and contagious diseases, even for a moment be deemed purely typical, as the Hebrews doubtless did, and as some even now are apt to consider them. Unquestionably they are largely, nay, mainly, sanitary, and not to be summarily discarded because the Hebrew ritual is deemed obsolete by Christians. This idea is corroborated by their being found to be identical with the means now adopted in this enlightened age for preventing or minimizing infection and contagion: to be presently alluded to. But these secular ideas are clearly antedated by the Jehovistic of centuries ago; for while those of Holy Scripture date back to the days of Moses, secular notified inspection is mainly an idea of the present century, especially its latter half; while its isolation and disinfection, though traceable for some centuries, it is only in a partial, isolated, voluntary and fitful form, and not generally followed, far less public and compulsory.

In corroboration of these views it is both curious and instructive to note the great similarity that exists between these practical and efficacious rules laid down by Jehovah's revelation to the great Hebrew sage three thousand years ago, for the management, especially the prevention of leprosy; and the following suggestions formulated by one of the most philosophical and far-seeing physicians of the present century; by the faith-

ful and universal acceptance of which not only small-pox but also all other contagious and infectious diseases would be stamped out of Great Britain within a period of six months or a year. This contrast moreover shews plainly how much modern sanitary science is endorsed by the Jehovistic revelation; and also how closely our present-day hygienic enquiries have followed Biblical lines, and arrived at similar deductions by empirical paths.

Sir James Y. Simpson's regulations comprised:—

1st. The earliest possible *notification* of the disease after it has once broken out on any individual or individuals.

2nd. The seclusion, at home or in hospital, of those affected during the whole progress of the disease, as well as during convalescence from it; or until all power of infecting others is past.

3rd. The surrounding of the sick with nurses and attendants who are themselves non-conductors or incapable of being affected. Inasmuch as they are known to be protected against the disease by having already passed either through cow-pox or small-pox.

4th. The due purification during and after the disease by water, chlorine, carbolic acid, sulphurous acid, &c., of the rooms, bed-clothes, &c., used by the sick and their attendants; and the disinfection of their own persons.

Those simple yet practical rules of Simpson's read like a paraphrase of the Mosaic injunctions given in previous pages. And though now, thanks to the rapidly advancing science of sanitation, deemed neither impossible nor improbable; were thought by many when they were first penned in 1868 to be utopian and the dream of an enthusiast. This mistaken and unnecessary depreciation of the wise suggestion of the modern physician need never have occurred had the Mosaic record and historico-medical facts of the Bible now spoken of, been kept in view. It is fortunately true that in one of the modern infectious and contagious diseases, namely, small-pox, we have a material advantage over the ancients in having the protective and preventive power of vaccination, unknown in the days of Mosês; and first practised, so far as we know, among the Hindus by the "divine physician" Dhangemtanzi centuries before it was heard of in Europe and re-discovered by Jenner. But in the case of other contagious or infectious diseases, the laws laid down by the Hebrew sage for leprosy are the most thorough of the two, the ancient and modern codes, especially that part relating to the mode of disinfection and complete destruction, namely by fire. Indeed, it is only recently that modern minds have recognised the dangers which lurk perhaps

for months, nay, for years, in infected clothing, bedding, furniture, houses, and especially in the dust which accumulates in these and elsewhere.

The agreement between the wise hygienic laws of Moses, made for public protection over 3,000 years ago, and the latest proclamations of secular medical science is remarkable. And the former are as suitable for us and the present day as they were for the Hebrews and early period of Man's history during which they were framed; and are moreover as likely to prove efficacious in stamping out not only the chronic disease leprosy as the more acute and far more rapidly fatal contagious diseases that now afflict us, as any of the plans that have hitherto been devised. Is this altogether accidental, or is it intentional, suggestive and a Divine revelation of a comprehensive and immutable law for the counteraction and suppression of a great evil by voluntary and united effort? The stringent leprosy laws of Moses are identical with those of to-day for infectious and contagious diseases generally; viewed thus are they not worthy of our most earnest study?

Indeed sanitarians in this matter, like scientists in other directions, are only beginning to discover the importance of truths that the Bible has been silently inculcating for ages; truths that mankind generally and even many of the Hebrews have been ignoring, despising and neglecting; and that might have been long since acted on, and much health and many precious lives thereby saved, had Man wisely followed Divine advice to "search the Scriptures" for guidance in a matter that so well repays the trouble, and had they not injudiciously "hated instruction and cast His word behind them" (Ps. l. 17). In the Holy Scriptures we may thus often, if we choose, find the road to physical as well as to spiritual health and life. Doubtless it would be well were we to accept for contagious diseases generally these Biblical warnings and closely follow the same laws, modified perhaps to suit the age and special conditions in which we live, that are given to the Israelites regarding this very plague of leprosy over 3,000 years ago, amid profound and universal sanitary darkness "take heed that thou observe diligently, and do according to all that the Priests and Levites shall teach you. As I commanded them so shall ye do" (Deut. xxiv. 8). The ultimate and happy result of this would be the total extinction and disappearance of every one of the diseases in question, the great Bible disease, leprosy, included. As with the ancient Israelites it is mainly disobedience or disregard of Nature's laws of health and their greater neglect in modern times both by the public and their leaders that makes the various infectious and contagious diseases now among us, so numerous, fatal, and so much more persistent than even the

Israelitish leprosy. If our organized and systematic efforts against these, including segregation of the ailing and the suspected, destruction of infected clothing, effects, dwellings, &c., &c., were all as perfect as theirs, and our methods of abating nuisances were as summary, we might soon be as free from those modern scourges of the race as were the Israelites of the Wanderings from their special and feared disease, leprosy, when they strictly obeyed God's sanitary laws, which unfortunately, like ourselves, they did not always do. If, for example, every case of small-pox were at once and completely isolated till all chance of infection had gone; while the patient's clothing, bedding, effects, dwelling and sick-room, relatives, visitors, and nurses were also thoroughly disinfected, and if necessary destroyed; the patient's family, friends and others to whom the disease may spread by so many different channels, would in all probability escape. And thus that special form of ailment would ultimately and perhaps soon become so rare as to be a phenomenon and at least entirely disappear. And so also, if similarly treated, would scarlet fever, diphtheria, and the whole of the large class of infectious and contagious diseases be first curtailed and minimized and ultimately eradicated.

Isolation of infected ailing, first employed by Moses, and particularly for the chief infectious disease for which the Israelites and other nations of that day suffered, namely, leprosy is employed in modern times for opposing and curtailing the large class of cases usually called infectious and contagious. It includes enforced isolation for a certain period, differing in different diseases according to their infectiousness; and, if necessary disinfection, cleansing, and medical treatment of the disease. Its main application is for suspected or infected individuals, their personal effects, dwellings, rooms, especially sleeping apartments, furniture, bedding, clothing, &c. It likewise and largely includes the scrutiny of ships hailing from infected places; their crews, cargoes, passengers; letters and goods sent from infected parts, &c. On land it includes the scrutiny of travellers, vehicles and goods from infected or suspicious places. The isolation may only include single individuals, houses, or streets: or it may extend to an entire village, town, seaport, coast, country, nation, or quarter of the globe; according to the spread of the disease which the isolation is meant to oppose and conquer. But the medieval mode of applying isolation and making it invariably extend to forty days (quarante-quarantine) is now abolished and our modern methods made to resemble more those of the Mosaic hygiene in varying and being longer or shorter according to circumstances, especially the nature of the disease and its virulence or tenacity.

As already mentioned there is still another and exceedingly

valuable mode of combating these infectious and contagious diseases by preventive measures, and one which is strictly modern, inasmuch as it finds no place in the Mosaic system or any other part of Scripture, being a purely secular discovery; namely, the antidotal, that introduced and popularized by the now well-known preventive treatment of variola or small-pox, by deviralizing the poison or virus which causes the ailment by vaccination with "cultured," that is mild virus, the product of the stronger variety after repeated re-vaccinations, human or bovine, the latter by far the best. The poisons of other infectious diseases so treated correspond to the vaccine virus from the udder of the cow or calf after vaccination of that animal with small-pox virus. The virus, or as we may term it microbe poison, becomes "modified," that is rendered weaker and milder, by thus passing through the body and blood of the quadruped. The modified virus so obtained produces by vaccination of the human infant or adult a "modified" or weakened form of the disease. And thus if it does not entirely protect from the ailment, as it frequently does, by opposing infective reception of the disease, it at least "modifies" it, rendering it milder, that is, reduces its intensity, shortens its stay, diminishes the number and size of the vesicles, and thus makes it less disfiguring, fatal and loathsome. Physicians hope to be ultimately able to similarly cope with every one of the zymotic diseases as they now do with smallpox; and are working zealously towards that end, to discover modes of introducing disease correctives, opponents and germicides, with a view to similarly prevent or cure other well-known frequent and fatal exanthemata and germ-caused diseases. Useful and valuable as this mode of coping with small-pox and perchance with other microbic diseases, such as diphtheria, typhoid, yellow fever, &c., undoubtedly is among the human race; and also in preventing certain very severe and fatal diseases among the lower animals, for example, chicken-pox, cholera and anthrax: and possibly useful also in preventing or modifying certain diseases in the human species, and perhaps ultimately every one of the exanthemata, there can be no question that the prevention of infectious diseases as a class by the other and previously spoken of mode, that inferentially advocated by Moses, by purifying the air, the water, food, &c., and preventing putrefaction, germ breeding, decay, and decomposition in animal and vegetable substances; or checking this when it has already begun, thereby giving infectious and contagious germs no suitable nidus in which to alight and propagate, is of infinitely greater value; unquestionably an advance on the second or preventive mode; and doubtless the method which should usually be followed, as it is both the most philosophical and the most practical. Be-

cause by this plan we kill the infectious germs before they get into the body and blood, and thus prevent them from entering it at all. Whereas by the antidotal plan now alluded to we attempt to effect their destruction only, by introducing into the body similar germs in a mild, less peccant form, so as thereby to induce a modified or gentle form of these diseases, which gives the system, by some occult yet certain law of Nature, a self-protective power against the more virulent microbes. A conjunction of both methods is doubtless the wisest to adopt; and one which is indeed imperative in the present semi-enlightened and careless state of society. Many wards of hospitals and public institutions, old polluted houses, unsanitary streets and quarters of cities even in so-called civilized countries, would be benefited by the application of these Mosaic laws. And how much infectious disease, such as erysipelas, small-pox, and so forth would be thus prevented? How much more imperfectly conceived and applied are our modern preventive laws than were those of the Hebrews during the Wanderings. How much less care do the mass of the people, their leaders and teachers now pay to perfect the purification, disinfection, and destruction of clothing, bedding, and other articles to which the germs of contagious diseases cling; and to other regulations by neglect of which these diseases are so frequently spread.

How needlessly minute and even trivial and puerile many of these health laws appeared even so recently as fifty years ago; as they doubtless did to many of the early Hebrews. But how wise and practical every item, even the most detailed, now seems in the light of modern science. And how apposite appear the repetition of these sanitary regulations again and again, with what may appear wearisome and unnecessary point, to impress them on their notice and ours, and shew their importance. Taken as a whole these rules for the prevention of leprosy form the most valuable and practical part of the medical legacy which Moses has handed down from Sinai to posterity, both Jewish and Gentile. Did not the Jews of over three thousand years ago understand sanitary science, not only in its broadest but in its minutest aspects, better than the masses of the present day? Unquestionably the ancient Jews understood and carried out practical sanitation better than the throng of the most civilized modern nations. Do not the health laws of the Pentateuch shew how far advanced as a sanitarian was the medically and Jehovistically enlightened Moses; how far superior he was as Jehovah's special pupil to any predecessor, cotemporary, successor, or even modern sanitary sage. And how far the Jews were ahead in sanitary matters of the nations who preceded and succeeded them in greatness and dominancy.

Can we doubt that, apart from and secondary to the higher purpose of many of the Bible maxims, there is often a physiological and hygienic application in them? And also that there is a spiritual, moral and social, as well as a physiological application, in these hygienic truths, especially in these laws for contagious and infectious diseases? Can we doubt this any more than we can deny that there is a physiological and hygienic application in most if not all of the spiritual maxims and lessons of Holy Writ based on medical data. Vice or soul disease, like body disease, is contagious. Like the one so the other clings to the individual on which it fastens; and there slowly and insidiously increases till it perhaps finally overwhelms him. Like it also this should be met by strenuous preventive measures; and thus, if possible, nipped in the bud, or checked in its early career, ere it has ruined the unfortunate who has fostered it.

Thus the apparent excessive minuteness and even the occasional seeming absurdity and puerility of the Hebrew hygienic code to many non-medical minds; especially the laws regarding cleanliness, sewerage, disposal of the dead, and lastly and mainly for the prevention of infectious and contagious diseases: and also the idea that they are purely ceremonial, figurative, typical, and only Hebraic and intended for ceremonial and spiritually educational purposes, all disappear before the light of advancing Nineteenth Century knowledge and the rapid progress of modern science: while the great wisdom and foresight of every one of them becomes daily more obvious to the unbiassed intellects of true believers in Holy Writ.

Yet after all is it surprising that judicious sanitary suggestions of strictly human origin, like those of Sir James Y. Simpson, are so slowly received, and still more tardily practised, when the wiser, more complete, and efficacious sanitary laws of the Holy Scriptures, especially the Sinaitic, specially codified by Jehovah, have been so long ignored because supposed to be obsolete, meant for a particular locality, and special people, for an early period, primitive human ways; and inserted in a mainly theological volume.

The contrast here given of Biblical and secular hygiene, as to the treatment of infectious and contagious ailments, appears to fully shew:—

1st. That they correspond very closely; the old and the new.

2nd. That the Biblical is not elementary and crude but a very complex system, far-reaching, practical, and efficacious.

3rd. That it is a complete and not a partial scientific outline or summary.

4th. That it is not antiquated or obsolete, immature or trivial, and unworthy of serious sanitarian study, but is still tuitional.

5th. That its items are not entirely typical, though partially so, yet mainly sanitary.

6th. That as it is not Mosaic, but Jehovistic, the Bible system is, like all God codifies and elaborates, "perfect" (Ps. xix. 7), and infallible.

7th. That the Biblical, *i.e.*, non-medical source of the latter, instead of diminishing its trustworthiness and acceptability and comprehensiveness, only enhances it. The God who created knows best how to prevent disease.

8th. And the contrast further proves how wise, deep and broad was the practical hygienic advice that Jehovah has bequeathed in the Pentateuch regarding disease-prevention; and indicates how much more advanced would our secular sanitation have been had the Holy Scriptures been made the rule of our conduct earlier.

"Render under Cæsar the things that are Cæsar's, and unto God the things that are Gods" (Mat. xxii. 17). While we give modern sanitarians the credit they deserve for their sanitary acumen, let us not grudge or forget to give Jehovah the praise which is clearly His due for His pioneer, far-seeing, comprehensive and highly beneficent revelation regarding the best modes of infectious and contagious disease prevention, which mankind has so long, ignorantly and unwisely, overlooked or contemned. The complete Divine system for disease prevention was still wiser than this and was all embracing, for it did not confine itself to the prevention of communicable disease only. For the environment in which he placed the early Hebrews was such that the nature of their food, drink, air, exercise, rest, and all else that is of sanitary import, was in the very highest sense preventive of general disease, both as to individual items and in their combination. Many widely different means all converged to effect one grand object, the preservation of the national health in the Wilderness as a necessary object towards their permanence and dominance in Canaan. Their wonderful salubrity in the Desert was no doubt special; but it was largely effected by natural means and the perfect obedience to the Divine laws of health, identical with those which now prevail and that we strive to follow to effect the same object.

But all this was only preliminary and intended to promote a still higher object and to favour the sanitation and health of the real and permanent being. For the Jehovistic hygiene meant for disease prevention was still more comprehensive and far-reaching. For it included laws and measures and environments not only for the diminution of physical disease, but also for the decrease and elimination of social, moral, and spiritual disease or sin; the whole of the human entity being thus cared for, soul as well as body; and the entire race as well as the Israelites. The disease-prevention and health-preservation of the widely different departments of the human entity are closely intertwined, and either mutually helpful or detrimental. The normal functions of these entities are one and all most fully performed, cæteris paribus, when they are every one in the enjoyment of the highest health. Man's racial rehabilitation and the cure of the sin and its results, both physical and psychical, already rampant, and their sad results, soul and body disease; and the prevention of further evil: and their ultimate eradication by preventive measures of God's own wise and infallible choosing, are among the chief objects of Jehovah's comprehensive and benign hygienic and Biblical legislation for His human offspring, Man.

CHAPTER XXVII

PUBLIC DISPOSAL OF THE DEAD

"There they buried Abraham, Sarah, Isaac, Rebekah and Leah" (Deut. xxxi. 14; Gen. vi. 17).

Although it would be interesting, our present theme is not to study what the ancients and the heathen of old did with their dead; but what the Holy Scriptures say, suggest or ordain, especially the Pentateuch and law of Moses; and what the different Bible characters did. And, if possible, to ascertain what is the usual, best, and Biblically permissable mode or modes of sepulture and the wisest for us to follow as individuals, communities and nations. What is God's will in this matter? Clearly not one of indifference to us; when we consider the myriads of human beings who have come and gone since Adamic days; and the daily increasing numbers who make their exit? Can we therefore glean any information from the Mosaic story of the Wanderings; and from the custom of their great leader, who no doubt knew God's will in this event, and did with the dead Israelites exactly as he was commanded. For nothing regarding God's chosen people was left to his fallible human wisdom, even in much less important matters than this, the disposal of Jehovah's last and greatest earthly creation, the human frame. The Hebrew bodies as well as their souls were under God's special and accentuated care, even when dead. "Ye shall not do every man what is right in his own eyes" (Deut. xii. 8) was one of His most imperative commands. In all things this included, the Hebrews had to do exactly as God decided, either by plainly expressed commands or indirectly implied ones, as in this instance. Nor must we forget that very few of the two millions who left Egypt entered Canaan. The Wilderness was a vast Jewish burying ground; more interesting for research than the monuments of Egypt, Assyria, or Judea, and less studied.

The dead human body is everywhere more or less reverenced, especially by Christians, who regard it as a very sacred thing, because it is God's property; was the home of an immortal soul; is a structure in which probably lies concealed the germ

of the new frame of the future resurrected and immortal being; the second and permanent home of the soul. We therefore most carefully watch, tend, lay each others bodies to rest, and dispose of them where they may rest in peace, and undisturbed until the resurrection morn appears, and with it a new dispensation of things, a new Heaven and a new Earth (2 Pet. iii. 13) and a new body (1 Cor. xv. 44). In all ages and countries the disposal of the dead has been, still is, and ever will be a question and a matter of great importance. It is, moreover, not only a subject of personal but also of public import. Individually, we intuitively desire to have not only our own bodies after death cared for and protected from indignity and desecration; but also those of our dear ones, and indeed those of humanity generally. Publicly also the subject becomes one of great import; so that the fast decaying dead may not be a cause of detriment and disease to the living. Christians shew their respect for the dead mainly for the following reasons, viz.: *first*, sentiment; *second*, reverence for the departed; *third*, self-respect for their own future; *fourth*, because they review the phenomena of death and burial as a departure of the real person for another sphere; an exodus of the soul from the body; an unclothing of an immortal soul; a going to sleep; a going home from a transient abode; and the body as the garment, Tabernacle or tent of Man's immortal part: *fifth*, because in the dead body may lurk somewhere the germ from which our future new and immortal body may become developed: *sixth*, necessity compels; because it is not only painful and repulsive to see our beloved ones putrefy, perish and decay, but also offensive and dangerous to the living. The human frame in life is stately, beauteous and precious, but very perishable when that which holds its parts and functions together, namely life, is taken away.

When a human being dies and is buried, the body soon, sometimes very quickly, and even before actual death, begins to decay, and even putrefy. This chemico-vital action goes on in its fluid, solid, and hard parts until at last the frame is entirely resolved first into gases and fluids, which are dispersed in the atmosphere and into inert semi-solids and solids which mingle with the ground; dust to dust, earth to earth, ashes to ashes. This process is effected partly by chemical action, and largely by the cannibalistic energy of microbes and other larger animal and vegetable forms of life. The human body thus becomes, sooner or later, resolved into its original chemical elements or goes to be assimilated with and incorporated into other, especially insect forms of life. The latter have been studied and differentiated with great exactitude, but their names and zoological classification need not be given here. The time required for

this dissolution varies according to circumstances; especially, *first*, the nature of the disease which caused death, whether rapidly putrefactive or otherwise; *second*, the age whether young and soft, or aged and withered; *third*, the character of the ground, whether dry or moist; *fourth*, the nature of the climate, whether dry and cold, that is preservative, or warm and moist, that is disintegrating. The Holy Scriptures illustrate the latter and shew the effect of climate and weather on the human corpse. "Rizpah, the daughter of Aiah, the concubine of Saul" watched for six months, namely from "the beginning of barley harvest" in April to the rainy season in October "till water dropped upon them out of Heaven" to guard the corpse of her murdered kinsman from beasts of prey; so long did they, under the dry and fairly warm air of Palestine, keep in such preservation as to be a prey to wild dogs and vultures (2 Sam. xxi. 10).

It is interesting here to note certain facts emphasized by Dr. T. K. Chambers, viz., that as Drs. Bidder and Schmidt have shewn that a body of a man, say of 130 lbs. weight, contains 4·6 lbs of nitrogen, an element that may be said to be the chief ingredients of the human frame. On the other hand Liebig has shewn that the liquid and solid excreta of a man by the kidneys and bowels amount in $3\frac{1}{2}$ months to 4·7 lbs.: which of course must be renewed by the food, so that the intake of this as near as possible balances the outgo from tissue decay of the living body. Again, Devergie has shewn from observation of the dead bodies in the Paris Morgue, that it takes about the same time, namely $4\frac{1}{2}$ months, for the body to decay in the open atmosphere: that is until complete destruction of the face occurs, or the bones become brittle, and the bulky muscles of the neck and thighs are converted into adipocere. So that we may call $3\frac{1}{2}$ months a short time to be occupied by the decomposition of a human body. These facts prove that active living flesh and dead flesh last about the same time; and are moreover resolved into their original elements in about the same time, the chemico-vital process in the living body proceeding as rapidly as the purely physico-chemical in the dead frame. This, however, is only the first part or stage of the disintegrating process, partly chemical and partly physical. The further resolution or conversion of what remains into gases and fluids or dust is a slower and longer sequel; which varies in length according to the environment above spoken of. But as this entire episode in the history of the human frame is humiliating and loathsome to the living, especially to loving eyes, we merely keep our dead for a time, say a few days, then gladly and wisely hide them and strive to forget what is still going on by putting them in the grave or cremating them, to hasten the slower operation of Nature in the ground. Moreover, we thereby prevent the dead

from morbifically injuring the living. The speedy and proper disposal of the dead is a matter of the utmost sanitary importance; as will presently appear.

Mankind shew their interest in the dead in various ways: thus---

1st. By the rites and solemnities followed in disposing of the body.

2nd. By the different modes of its disposal.

3rd. By the cost and elegance of the tomb in which they lay the body; or that placed over or near the grave.

Of these subjects the second is the most important; that which is most discussed; that which we have mainly to study here briefly; and to speak of not as concerns the dead themselves, but mainly as it concerns the living left behind, and the influence which the dead body, liable to decay and putrefaction, is likely to exert, or may perhaps have on the health and happiness and even life of the living. In brief, we have to consider the hygienic aspects of the different modes of the disposal of the dead.

The more usual modes of disposal of the dead are five in number: viz.—

1st. By earth or cave burial (Job xix. 6; Gen. xxv. 8), where the weary are at rest (Job iii. 17, 19, 26). This is the most ancient and still the most general mode.

2nd. By cremation, or rapid destruction by fire. Of this we find only four instances in the Bible, viz., *a*, Samuel and his sons (1 Sam. xxxi. 12); *b*, in general sickness (Amos vi. 10); *c*, in 2 Kings xxiii. 20; *d*, in 1 Cor. xiii. 3. This is a later innovation in modern times.

3rd. By burial at sea (Rev. xx. 13). This, putting deaths by shipwreck, &c., altogether aside, forms a numerous band whose bodies are never recovered; is not unfrequently a comparative necessity, and unavoidable in the case of death among such as seamen and travellers who go down to the sea in ships.

4th. By chemical decomposition, as by quicklime; sometimes employed for criminals after hanging, &c., to mark our detestation of special crimes.

5th. By embalming and mummification, as was mainly carried on in ancient Egypt, in the belief that the soul continues here as long as the body endures; thus vainly attempting to make both immortal. For the same reason and to still further ensure the body's safety, it was then entombed in the centre of a huge pyramid, made expressly for its reception and perpetuation.

Of these different modes of disposal of the dead the fifth,

by mummification, is unwise, unbiblical, and is now justly obsolete, at least as the Egyptians practised it; and only followed with us partially and for temporary purposes; as it is a relic of a bygone age and of erroneous ideas regarding human immortality. The fourth is rarely resorted to, as it only affects and disgraces the body and not the individual. The third is shunned, because uncertain both of locality and results. The second is a comparatively recent innovation in Christian communities and still largely in the minority. On the other hand the first mentioned, or earth burial, is that to which all or at least most of the many varieties of mankind naturally, intuitively or sentimentally, resort; although it, too, has its sanitary objections. And on the whole this is the mode of disposal of the dead that is sanctioned and sanctified not only by race-wide and time-long usage, but also by Biblical endorsement.

The question as to the proper disposal of the dead human frame therefore resolves itself into one of which of these latter two modes is the best and right one; or if both are admissable and Biblically endorsed. For Christians recognise the Holy Scriptures as final in this as in all else, in worldly affairs, and feel that they are sure, if the subject is spoken of at all, to solve the problem, directly or indirectly, and indicate both which is best and right; or if both are permitted. But before we proceed to study the main, that is the Biblical aspect of the question, it is necessary to point out that the disposal of the dead is not only a sentimental and social subject but is now recognised to have an important sanitary and social aspect. From a hygienic point of view these two chief modes usually followed differ in importance and value: thus—

a By earth-burial the many widely different tissues of the body are ultimately dissipated by combined chemical action and by the minuter forms of animal life, which combine and get rid of the soft parts, and in time of most of the harder tissues, the hair, nails and bones, except the hardest. But these processes of decay are *first*, tedious; *second*, apt to contaminate both the soil and air overhead by diffusion of noxious gases; *third*, and also apt to contaminate the surrounding and the overlying soil by vapours and fluids; *fourth*, also and in a similar way to contaminate by infiltration, the water springs that may flow through, past or near the grave-occupied ground; *fifth*, to engender microbic forms of life, contagious and otherwise, to constitute fresh foci of contagious diseases. Clearly one and all of these might prove detrimental to the health of our neighbours, as in towns, cities, and villages, where the "churchyards" are often located round places of

public worship and in the very heart of the community instead of at a reasonable and sanitarily safe distance therefrom.

b Cremation or destruction by fire, whether accidentally or intentionally induced, chemically alters; converts from organic into inorganic compounds or elements; and almost completely disinfects the bodies of the dead. And what is a matter of even greater importance, it destroys any poisons or disease germs which the body may harbour; thus rendering the scanty resulting ash comparatively harmless and non-morbific. In death from infectious and contagious diseases, the list of which is now long and continually increasing, no better mode could be had of destroying the morbific germs and danger completely. And it is an important sanitary problem and public question whether this should not be made compulsory in such cases.

c By burial at sea the dead bodies are either salted for a time by the strong brine; but doubtless they are usually and sooner consumed by the lower forms of ocean animal life; or they are softened, dissolved or disintegrated and dissipated, except the bones, which lie at the sea bottom, unlocalized, unknelled, uncoffined, and unknown. All this involves nothing likely to harm living humanity.

d Burial in quicklime is comparatively seldom followed; as it does not appeal to our sentiment. It has been mainly used for criminals; and as a deterrent to others. But, as with cremation, it would also be an effective mode of disposal of the dead, especially if conjoined with earth-burial, of dealing with bodies highly saturated with infectious or contagious germs; *e.g.*, those of yellow fever, plague, cholera, diphtheria, small-pox, phthisis, &c. For thus would the dangerous germs be effectually destroyed with the tissues that contain them and the danger of new infection and contagion wholly removed.

e Embalming and mummifying, was eminently strongly legislated against by the Supreme in making the touching of a dead body or grave to be regarded as causing ceremonial uncleanness according to the Sinaitic law. Embalming is no longer resorted to, at least in old Egyptian modes; nor except in a minor form for temporary sentimental purposes and transportation; as were the bodies of Joseph (Gen. l. 2) and of Jacob (Gen. l. 25) in premosaic times. The

Egyptians, descendants of Mizraim, were Polytheists, and erred in many ways, religious, moral, social, mental and sanitary. And in this, among other things, they tried to preserve and if possible immortalize, what Jehovah had doomed to decay, namely, the dead human body. The Hebrew law in question was no doubt partly made to prevent this practice for sanitary and other reasons, especially ethical ones. Hence they are not to be imitated by us in modern times any more than by the Hebrews. Moreover, it is a hygienic question whether preservation by spices, &c., after death from contagious diseases, does not preserve instead of killing morbific microbes, as it does mummy wheat, to be re-vivified and awakened from their "resting" stage of life on exposure to favourable conditions for vegetation, to thereby endanger the living of future times by causing a recrudescence of infectious or contagious disease. Thus, for example, might an ancient plague, &c., be re-introduced from a mummified body which had died of that disease thousands of years ago.

Where, as in this case, wide difference of opinion exists regarding the right or best mode of disposing of our dead, among several that may be followed: we naturally turn to the Holy Scriptures bequeathed by Him who is at once our maker, preserver, guide, councillor, and Divine educator, and to His revealed book and laws, to see if we can find a solution or advice likely to guide us and solve which is the right one amid conflicting ideas. In our quest we turn especially to the Pentateuch and the Mosaic code; those books in and by which Jehovah has legislated so comprehensively yet minutely for Hebrew guidance and through them indirectly for us, in so many mundane matters; for the soul, mind, and body, both of the race, the community, and the individual, to find if he has said anything regarding the disposal of the defunct casket which the soul leaves behind when it bids this earth school farewell. Does it say definitely how the dead human body should be disposed of; or, if not, does it endorse for the Hebrew race, for other races, and their successors any specially prevalent custom? What is or are the usual Biblical mode or modes of disposing of the dead; and what are their several advantages or disadvantages?

Allusions to the important subjects of death and burial pervade the pre-Mosaic, Mosaic, and post-Mosaic Holy Scriptures. The first allusion was in Eden, and to the Primal Pair, who, with their offspring, were doomed to "return unto the ground; for out of it wast thou taken, for dust thou art

and unto dust shalt thou return" (Gen. iii. 19). That clearly implies they were all to suffer death and burial. As already explained, the human body is not wholly solid; nor does it consist wholly of dust, but contains a very large percentage of water. This doom must not therefore be taken literally, but in its broad application and means that the body is to be sooner or later buried in one of the most potent of physical and chemical decomposing agents, namely, common earth, to be thus and thereby resolved into its original elements by Nature's chemistry and into the 13 chief primary substances, namely, oxygen, nitrogen, carbon, hydrogen, sodum, potassium, magnesium, chlorine, phosphorus, calcium, ferrum, sulphur, fluorine, of which the human frame is composed. That this means earth-burial is clear from the many subsequent allusions, and negative endorsements.

From the Pentateuch we find that the Patriarchs laid down their dead to rest, as we do now, in some favourite, quiet, and blessed spot, which was held sacred, often visited and tended with loving hands. Jehovah, who often gave advice in other matters, never interfered with the prevalent custom, that of earth-burial, which he would clearly have done had he disagreed with the early human procedure. There can be little doubt that this custom prevailed for the next 2,106 years, and until Jehovah said to Abram in a trance "thou shalt go to thy fathers in peace; there shalt thou be *buried* in a good old age" (Gen. xv. 15). By this God again clearly endorsed *earth* burial. Abram was gathered to his people and Isaac and Ishmael buried him in the cave of Macpelah, near Mamre (Gen. xxv. 8). In this cave also were Sarah, Isaac, Rebecca, Jacob, Joseph, and Leah buried (Gen. xliii. 3; Josh. xxiv. 32). Jacob and Joseph were embalmed and carried thither from Egypt to this cave, the family tomb, where they desired to be buried (Gen. i. 2-26). But this was very different from mummification and the sentiment which led to the Egyptian practice.

The Pentateuch contains so many useful, practical and philosophic hygienic hints on the subject on hand that we naturally turn to it in this matter also, to find if we can glean anything from the history of the momentous wanderings; during which so many Israelites succumbed from various causes, of their mode of disposal of their dead; and to find whether Jehovah gives any hint or lays down any definite law regarding this, or if He approves of any special mode. While He here lays down laws for humanity of many different kinds and of many different degrees of importance, He does not directly legislate regarding the disposal of the bodies of the people so dear to Him; but merely tacitly endorses the continuance of the prevalent and long-established Hebrew custom; and insti-

tuted by Himself in the earliest days of the race, as part of the Adamic racial punishment "dust thou art and unto dust shalt thou return" (Gen. iii. 19). When He legislates frequently and minutely for other matters that concerned the life of the Hebrews, He does not for this; and says nothing even regarding their places of sepulchre. What has been done and what was being followed pleased Him. The Hebrews had not forgotten His pleasure in this as the Egyptians were doing, and as not only they but even many of the Hebrews had done regarding the Sabbath. He had to repeat and emphasize no old enactment regarding burial. All this to any unprejudiced mind clearly endorses and inculcates earth-burial. And the Hebrew practice corresponded. The Pentateuch records that Miriam died and was buried at Kadesh-Barnea (Numb. xx. 1). Aaron was subsequently "gathered unto his people" in Mount Hor (Numb. xx. 21), and there he was buried (Deut. x. 6). Further on we read of the latter days of Moses, one of the greatest of men and God's own special "servant" (Numb. xii. 7) and "friend" (Ex. xxxiii. 11): whom Jehovah, for His own superlatively beneficent and Divine purposes took in His peculiar charge both in life and in death; and not only honoured above men by being present at his deathbed, but also in disposing of his remains, his mortal body when He saw fit to take the "prophet" home (Deut. xxxiv. 6). We read that God gave him special warning of his approaching end. Few have this. It would frighten and paralyze most; though not so Moses, the trustful. God said "Behold thou shalt sleep (lie down) with thy fathers" (Deut. xxxi. 16). That means he was to be earth-buried. This warning was repeated later on (Deut. xxxii. 50). Then we read of the closing scene, "so Moses, the servant of the Lord died there in the land of Moab" (Deut. xxxiv. 5). "And He (Jehovah) buried him in a valley in the land of Moab over against Beth-peor. And no man knoweth of his sepulchre unto this day" (Deut. xxxiv. 6): beyond this that his death occurred on Pisgah, one of the peaks of Mount Nebo, from which Jehovah Himself "shewed him all the land" (Deut. xxxiv. 2): thus leaving neither his deathbed scene, or his funeral, mode of burial, or its locality known to his fellow-men; doubtless to prevent idolatry. Jehovah thus sanctioned, sanctified, and honoured earth-burial by performing or superintending it Himself for Moses. Had cremation been more honourable, wiser and better, and earth-burial less so or derogatory, God could as easily have done this with the body of Moses as He did with sacrifices like those of Aaron (Lev. ix. 24) and Solomon (2 Chron. vii. 1); and taken this opportunity of expressing His will on this point before all that vast multitude. When Jehovah does not expressly legislate, does He not always

do and suggest indirectly and silently for human kind what is best and right?

During their forty years stay in the Wilderness the Hebrews must have converted this into a vast graveyard: and *buried* their dead, who must have been very numerous in terms of Jehovah's decree at Kadesh Barnea. This disposal must have been all along in the usual way as God desired, as no fresh legislation is suggested or recorded. For this they had a long precedent, which dated back to Adamic times and Abel, whose blood figuratively cried from the ground (Gen. iv. 10). The Hebrews had no precedent for cremation, and doubtless never thought of it even. One of the most important hygienic hints which the Pentateuch and the history of the Wanderings gives is, that all the Hebrew dead were so buried: and that the latter was not in the midst of the camp and around the central Tabernacle, to crowd, contaminate, make this mournful, and the worshippers ceremonially "unclean": but beyond and altogether outside the camp, where there was abundance of room for the sacred deposit and beautification of the graves, and no danger to the living from decay of the remains. The earth received the dead bodies of the Hebrew host as it had done those of their ancestors: nor did Jehovah alter the old mode of disposal of His dead "offspring." The Hebrew funeral, as in most warm regions, was usually within twenty-four hours after death, to anticipate and forestall decomposition and lessen ceremonial "uncleanness." It was thus for example that they disposed of those who lusted, in the "graves of lust" (Numb. xi. 31). So also in later times, the bodies of the prophets, *e.g.*, Elisha (2 Kings xiii. 21) were similarly treated (Mat. xxiii. 29). So also were those of the Priests (2 Chron. xxxiv. 5); and the saints, such as Stephen (Mat. xxvii. 53; Acts viii. 2): and King David, the man after God's heart (Acts ii. 29). All of these were personages in whom the Almighty took special interest, both earthly and eternal, and cared for their bodies as well as their souls, both being His as well as their service.

Coming to the time of Christ we find that He likewise, so far from condemning, only endorses earth-burial. Against this He never utters a syllable. When John the Baptist was beheaded and his disciples buried the body (Mark vi. 29) Jesus was told of it without comment, and silently but practically endorsed their mode of its disposal (Mat. xiv. 12). Again, it was Jesus who said "let the dead bury their dead" (Mat. viii. 22). Still more convincing is the fact that the Saviour consented to and publicly attested His approval of earth sepultre when Mary anointed His head and feet with costly spikenard ointment for His "burial" (Mark xiv. 9; John xii. 8; Mat. xxvi. 22). The Saviour still further emphasized and endorsed

earth-burial by permitting its actual accomplishment on Himself (Mark xiv. 8; xv. 46; Mat. xxvii. 60); "then took they (Joseph and Nicodemus) the body of Jesus and wound it in linen cloths with the spices as the manner of the Jews is to bury," that is prepare for burial (John xix. 40). Thus Jesus, like Jacob and Joseph, was partially embalmed by Joseph of Arimatheæ and Nicodemus and the two Marys (John xix. 39-40). By this form of disposal of His dead body, namely, earth-burial, Jesus thus "fulfilled," endorsed and obeyed the law; the unwritten law of God as to the best mode of disposal of the dead human frame. Would the Father have permitted His own son's body to have been so treated, embalmed and buried, had one or both been in any sense wrong, foolish, or unnecessary? For obvious reasons the embalming of Christ was doubtless outside or extra cutaneous, like Mary's spikenard ointment: whereas in the case of the Patriarchs it would be deep-seated and eternal, for long preservation. The raising of Christ from the dead was accomplished by Jehovah, who thus clearly acquiesced in the entombment or burial (Rom. vi. 4; viii. 11; Colos. ii. 12; 1 Thess. i. 10; 1 Pet. i. 21). It is He also who does the same for all humanity, both in a spiritual and physical sense "it is the Father who raiseth up the dead and quickeneth them" (John v. 21). Men bury their dead but God brings them back to life. On the whole, therefore, we may reasonably conclude from Scripture evidence throughout that Man's part and his conduct towards his dead, and our ordinary human mode of earth burial is and has all along been God approved and in consonance with His ideas and His will, if indeed He did not initiate the custom in the early history of our race. God formed Man's mortal frame out of the dust of the ground; and when his life education is ended and his soul goes back to its source and goal, its earthly tenement returns to the soil to be resolved by Nature's, that is God's chemistry, into the original elements.

Thus nowhere throughout the Holy Scriptures, not even in the Pentateuch, containing the history of the Wanderings of God's people in the Wilderness, and the Sinaitic code, God's special instructions for their earthly guidance, do we find any particular law or laws laid down regarding the disposal of the dead; simply because it was unnecessary; the Hebrews were burying as of old and as God desired. This was one of three God-ordained customs initiated at the beginning of the race; namely, Sabbath-keeping, marriage, and earth-burial. The first had been neglected and too often entirely forgotten, even by Jehovah's chosen nation, until He taught and reminded them of it by punishing its desecration by causing the gatherer of sticks thereon to be publicly stoned (Numb. xv. 36): and sub-

sequently codifying the previously unwritten law thereon, and and enshrining proper and regular Sabbath observance in the Decalogue. Marriage and the intimacy of the sexes was not likely to be forgotten or neglected. Nor was there any need for re-enactment regarding disposal of the dead. These latter particularly were all along, and were likely to continue to be, deeply respected and carefully tended. Nay, as with the Egyptians, this reverence was apt to be extreme; and this had to be indirectly legislated for by making all who touched dead bodies, bones, or graves ceremonially "unclean" and punitive, therefore to be avoided when possible. A dead body conveyed legal pollution to everything which touched it; including friends, relatives, tents, furniture, &c. This uncleanness was not temporary but lasted for seven days (Numb. xix. 14, 15, 16). How inconvenient it would therefore have been to be continually burying the dead near or round the central Tabernacle, as has prevailed in civilized countries, round churches in crowded communities? The Hebrew worshippers and sacrificers would have been continually becoming "unclean" unavoidably. Hence it was also why the Hebrew Priests who ministered in holy things, might not assist at funerals, except those of their nearest relatives. So stringent was this law that even dead bodies long buried, such as many a graveyard discloses, conveyed pollution. Thus, those of the false Priests, which Josiah burnt on the altar at Bethel, polluted these altars and made them detested (2 Chron. xxxiv. 5).

For the same reasons of purity or pollution we find no mention or law made in the Pentateuch of a burying ground within the precincts of the Hebrew camp; far less round its Tabernacle, after a fashion not quite exploded in civilized modern communities. Yet this was a congregation in which each person had his special duty and rôle, and everything its definite God-appointed place in the camp. The Tabernacle was centrally placed for convenience of the congregation; to worship and sacrifice. There it was accessible to all. But they did not surround it with graves and decomposing human remains; as we still often do for sentimental and pseudo-religious but sanitarily unwise reasons. What we term God's acre would have been entirely out of place in the camp and especially near the Tabernacle; for in the former God walked unseen (Lev. xxvi. 12) and in the Holy of Holies He dwelt (Ps. lxxx. 1): and He loathes all impurity (Heb. i. 13). And He intended by this negative means to teach an important sanitary lesson. The camp moved frequently and was not permanent; the graveyard could not be moved with it, however high the sentiment and desire. Nor would there have been room for the thousands who died in the Wilderness, especially where they made a long

stay, as at Kadesh and Mount Seir. Evidently, therefore, although the fact is not expressly mentioned, the Hebrews buried their dead invariably, even their notables, like Miriam, Aaron, &c., as Jehovah Himself did Moses, beyond the camp.

The Holy Scriptures purposely and minutely tell us of our origin, history, and exactly what a human being is. Informing us that we each consist of two entirely different but yet intimately and mysteriously combined entities; namely, the *soul*, our true selves, which at death leaves the body, is entirely taken out of our control and keeping, and goes beyond our ken. We cannot see nor do we know exactly when it leaves the dying body. Nor do we know how or whither it goes. But this the Holy Scriptures informs us; it goes back to God who gave it (Eccles xii. 7) and who made and owns us. All this we could not find out without being told, any more than could Plato and Socrates; however much we might theorize, like them, on the subject. And our knowledge is derived from the best of sources, Man's Divine Architect. It is different with the body, the soul's temporary tenement and earthly abode. We see for ourselves what becomes of this, physically and chemically; and act accordingly. We must dispose of each other somehow; by instinct, necessity, inclination; and in one mode or another. Hence why, as Christians, we naturally turn to the Holy Scriptures to find if they advise us in this important matter and shew whether we are acting rightly or wrongly in our mode of disposal of our dead. The Holy Scriptures and their teaching are meant for us and the human race as well as for the Hebrews: regarding this and all else. Unlike the Egyptians with whom they had long been intimately associated and largely taught; and who embalmed their dead in the vain hope of perpetuating and immortalizing them; the Hebrews were taught to give the dead body merely the reverence it should have, as the late temporary abode of the soul; regard it in its true light; reckon it at its true value: and no more. Jehovah accordingly made what the Egyptians half worshipped, namely, dead bodies, human remains, graves, &c., to be deemed unclean and defiling; to wean them from Egyptian customs and error. Thus were they taught exactly what a dead body is, and what is its due; so that it may receive corresponding care; and, above all, to indicate that it is no longer the person but only his or her perishable "remains"; the untenanted mortal abode of the immortal being who had left it. Something to be held in honour, respect and carefully tended; but not to be worshipped or perpetuated; but only disposed of as God has ordained from the beginning; and allowed to become "dust to dust." This term does not seem to mean cremation debris; but earth dust. When we consider the minute care and wisdom

of the Divine legislation for the welfare of the human soul and body while on earth, is it not feasible to suppose that Jehovah is the best judge of which is the most philosophical, wisest and best mode of disposing of our dead. Or at least that He would legislate against, and if necessary discourage, the prevailing mode among the Hebrews, if that was in any way wrong or objectionable. And that, if He had disapproved of the Jewish earth to earth burial, He would have discouraged, legislated, put a stop to, and spoken plainly and pointedly on this interesting, important and sacred theme, one which concerns every unit of the countless human race, now and for all time. But we find not a word to discourage earth-burial, the prevailing custom in Bible history. On the contrary, all that is said indicates that the Hebrew custom during the Wanderings consisted of earth burial, speedy burial, and that beyond the camp.

On the other hand cremation, an ancient Pagan mode of disposal of the dead, that has lately invaded civilized countries, has no such Biblical endorsement. We find it, however, mentioned in four places; thrice in the Old and once in the New Testament: thus—

1st. In the case of Samuel and his sons (1 Sam. xxxi. 12): when the inhabitants of Jabez-Gilead took the bodies of Saul and his sons from the Philistines and the walls of Bethshan and burnt them; doubtless to preserve them from further exposure and insult. But it is added that they took their bones and buried them under a tree at Jabesh and fasted seven days.

2nd. The second instance was in a case of general sickness (Amos vi. 10). The context in this case indicates captivity, overcrowding, and probably infectious disease; to destroy which the bodies of the dead were burned instead of buried. This was a wise precaution from a medical and sanitary point of view; and clearly favours and endorses cremation in the case of infectious and contagious disease; a practise from which no medical mind would dissent if free from sentimental bias.

3rd. In this case (2 Kings xxiii. 20) the good King Josiah, zealous for God, "slew all the Priests of the High places that were there upon the altars and burned men's bones upon them" (altars). This was evidently to defile and desecrate the idolatrous altars; and cannot be cited as Biblical endorsement of cremation.

4th. This instance is in S. Paul's writings (1 Cor. xiii. 3); "though I give my body to be burned" in self-sacrificing zeal for God and truth, as many martyrs have done, some perhaps from mere ambition, "it profiteth

me nothing." This clearly does not endorse cremation. A martyr submits his body to death; but the mode of the latter is not left to his choice; and is usually selected by others and for torture.

The following statistics will shew, however that cremation in the present day has a considerable number of votaries; and is spreading. Thus in the Long Island Crematory, United States of America, the numbers cremated in 1885 were 5; in 1893 it was 245. The total in nine years was 1,262; namely, 816 men, 332 women, and 114 children.

Again, the statistics of towns and cities give the following figures:—

St. Louis	267	Cremations	Baltimore	56	Cremations
Philadelphia	250	„	Troy	43	„
Cincinnati	227	„	Davenport	25	„
Buffalo	185	„	San Francisco	24	„
Los Angeles	145	„			
Detroit	128	„	Total	1,538	
Pittsburg	178	„			

We therefore feel justified in drawing the following conclusions from a survey of the Biblical allusions to disposal of the dead. No special form is expressly ordained by law: but

1st. The Holy Scriptures do not expressly legalize, ordain or compel earth-burial; and make it a Divine law, punitive if disobeyed; as it does regarding many other human affairs. But they distinctly endorse the race-long custom, and either follow or approve of it in the case of the chief Biblical notables, *e.g.*, Christ, John the Baptist, Moses, Aaron, &c. Nowhere does the Holy Scripture forbid or even decry earth-burial. Such as follow this custom, therefore, have Biblical, that is Divine endorsement. The Bible even elevates and makes the idea of earth-burial typical: and speaks of it in the Christian relation to Christ, as being "buried with Him in baptism." The supreme and far-seeing Divine Sanitarian initiated (Gen. iii. 19), performed (Deut. xxxiv. 6), and Himself underwent earth-burial (1 Cor. xv. 4). And did this as recognising and avowing this to be the best for universal, social, sentimental, and sanitary purposes, of any and all that Man could devise or choose. The best location for a graveyard was also pointed out to the Hebrews, though indirectly, during the Wanderings; that being not in the camp or round the Tabernacle, but well beyond the congregation, where decaying remains were less likely to contaminate and morbifically hurt the living.

2nd. At the same time the Holy Scripture nowhere legislates for cremation. And although it nowhere decries, denounces, or legislates against it, it nowhere endorses, directly or indirectly countenances it. Therefore such as cremate their dead, or desire to be cremated themselves, do not follow a practice or entertain an idea openly and forcibly condemned by the Bible or Jehovah: and thus commit no sin of disobedience to or disregard of any of God's commands.

3rd. It is no longer debated among medical men that the bodies of those dead from infectious and contagious maladies, such as the exanthemata, and perhaps consumption, &c., should be cremated, to remove the danger of infection of the living, especially nurses and relatives. The Holy Scriptures semi-endorses this idea (Amos vi. 10) and shews how early the idea of disease prevention had germinated and was practically carried out. The compulsory execution of this, however, is a matter which many of the laity might dispute; especially if anti-cremationists.

4th. With the public, therefore, the question of disposal of the dead is largely one of sentiment. And it appears to be left very much to our own individual judgment and private feelings as to the disposal of our own, or our relatives' and friends' dead bodies. Death, even in thought, is a repulsive subject to most persons: and the post-mortem processes are as distasteful to think of. But one or other mode must be chosen and followed; as body decay is inevitable. And the choice of how this is to be best hidden or prevented, is left very much to ourselves. Some minds object to the underground processes of decay, and to be devoured by loathsome, minute lower animals. And for the same reason they dislike ocean burial, which moreover gives no definite resting place. These may choose cremation. Others, again, object to this rapid, fierce and complete dissipation of their body by fire and prefer earth-burial. Sentiment enters largely into the question. But neither earth-burial nor cremation are erroneous from a Biblical standpoint. Nor do such as follow either break any Divine command; or neglect Biblical hints it would be wise to accept.

Whichever of these methods we choose for ourselves or each other; whether this is earth-burial, sea-burial, or cremation, we do it:—

1st. As speedily as is consistent with decorum. A corpse is simply an inert because lifeless machine, lately

vitalized, but out of which the motive force has gone, once occupied but now untenanted by one of God's human souls during its earthly probation and educational career; now completed. It is a temporary structure and abode, for which the immortal soul has no further use, and now throws off as we do a worn-out garment. We dispose of the body soon for the sake of the living. The human frame is the most highly organized of all living forms. Organic matter and organized forms decay with a rapidity proportionate to the complexity of their organization. Therefore human remains decay more rapidly and strongly *cæteris paribus* than those of any other dead animal. This organic chemistry of dissolution is exceedingly unpleasant to the tender human feelings and senses of the living. So we wisely and instinctively hide it from us soon. Especially because the entire process of decay is dangerous to the health and even life of the living: as the resulting gases, fluids, semi-fluids, and living forms, microscopic and otherwise, which find a fit soil to germinate therein, are all and often highly morbific. We therefore, the care of individual personal safety, health and life being one of the first and strongest laws of Nature, put our dead where we think the least harm may happen to ourselves, or we strive to altogether remove the unavoidable danger; the latter being a daily recurring incident; death being a pathological process, ever at work in every quarter of the globe: as it has been calculated that an individual dies every second of time that passes.

2nd. We dispose of our dead reverently; because each dead body has been the temporary earth abode of a departed but still living and undying immortal soul. Each individual person or soul, while still on earth, would and does naturally desire to have its physical life-partner and earthly framework kindly cared for and gently treated. Moreover, the body of which we have to dispose is a unit in one of God's highest earthly creations; a masterpiece of Divine contrivance and skill, infinitely beyond human ingenuity to create or copy. We respect it as such, and as the Divinely planned house we have once been honoured to occupy; and as still Jehovah's property; for the proper disposal of which Jehovah has implanted in all living beings, savage and civilized, an instinct which impels them to respect and carefully tend their dead.

But still, Christians realize fully that the outcome of this problem as to the mode of disposal of our dead does not alter the final result or our individual and racial future. We must dispose somehow, in reverence and for safety, of that part of us which becomes defunct at death: as that entity has no longer to do with the living, and might endanger them; being now an unstable part of physical nature, undergoing rapid chemical decomposition. But the Holy Scriptures assure us of certain most important and highly consolatory facts regarding our future. Thus:—

1st. That the soul, the ego, and real ourselves does not die when the body does. But exactly what happens to it or where the soul goes, we are no doubt wisely left in uncertainty, as to whether it sleeps (Job vii. 21; Ps. xiii. 3) and has a "resting" stage of existence, like mummy wheat and microbes. But the Holy Scriptures assure us the soul, though it may hybernate, will have another and active eternal life in Heaven; but where that is we cannot precisely say, from Scripture evidence.

2nd. But the Bible does inform us that the soul in the future will have a new spiritual and immortal body, different from our present mortal frame. But on many points we are left in doubt; all of them beyond our present theme. Still one thought will arise in the medical mind. In there in every human being some part, organ, fibre, cell, or indestructible germ of some sort, however minute or even microscopic, like the human owner, that may and will become a centre from which the new and immortal body may become developed. If so, may not this germ be more likely to escape destruction in the putrefactive process which follows earth-burial, than in the more complete, because rapid, chemical dissipation that constitutes cremation?

3rd. No matter how our dead bodies are disposed of after death, we need not be discouraged or despondent regarding the future solely on that account. The Holy Scriptures assure us of a resurrection, and a life eternal in another world, the spiritual, at present hidden from us. The condition of the soul during our earth life, and especially at death, is a matter of infinitely deeper moment. Altogether while on earth "we see through a glass darkly" (1 Cor. xiii. 12) regarding much that concerns us in the future, in our eternal life to come, and the spiritual world in which we are to dwell and form a far more intimate part

than now: and for which we are to be re-clothed with a far "more glorious" body than our earthly one. But this is not the place for discussing these subjects, which have already and probably always will while Earth and Man remain, give rise to much varied and often vain speculation. It is enough for us to know that the disposition and dispersal of our perishable mortal bodies, or the disposal of them by Providence, in whatever manner this is accomplished, as by air, water, fire or earth, need give mankind, especially Christians, little care or thought; as this will not in the slightest interfere with the future destiny and disposal by God of our immortal souls. Happy the being who can calmly say with Job, "though after my skin worms destroy this body, yet in my flesh I shall see God" (Job. xix. 26). This clearly implies the eternal safety and happiness of the glorified soul, re-clothed with its new and glorified body (1 Cor. xv. 43; 1 Cor. xv. 44; 2 Cor. v. 4).

Even at the present day we bury our dead very much at random, often hastily and wherever we can, without much reference to rapid disintegration, the final object of burial. As a rule people have to be buried near where they die, and locality, soil, climate, &c., are not always ours to choose. Putting sentiment aside, our main object is to bury our dead, so that the body may be soonest returned or reconverted into the dust or primary chemical elements from whence it came, and with the least chance of detriment to the living. It would be obviously unwise to bury where our dead might be long kept in a state of semi-putrefaction; and one of danger to ourselves or our neighbours. Much information is still required to exhaust the subject practically; no doubt because it is not and never can be a very attractive one, either to investigators or an expectant public. Death and all connected with it, graves and graveyards included, are unwelcome themes to most, even good people. There are many factors concerned in the process of earth-burial, to complicate the subject: some of which are connected with the dead body, and others with its new environment. These matters are of public as well as private import. Experiments with remains of domestic animals are unsatisfactory; but, for obvious reasons, research regarding the most highly organized of all, the human body, is not so easily attained. Before looking into these varied factors, it will be well to briefly consider the processes involved and called into play.

1st. The processes comprised in the decomposition of human remains are complex, because the framework is complex as are the agencies that act on it. As stated

in another chapter, 2, the human body, even in life, is continually dying piecemeal, cell by cell and fibre by fibre. But these are being continually and systematically renewed and replaced. Whereas at death the entire body may be said to die at once; and there is no reconstruction of tissue. In life vital chemistry possessed it. At death the entire frame is wholly given over to ordinary material chemical processes. We see the eyes glazing, features shrinking, hair and skin losing their gloss, even before the spirit departs. Dissolution of the material body goes on more rapidly however after this mysterious severance. Then we are glad to hide the now fast changing face and frame by burial, preferring to remember them as they were. Nor do we care to follow further. With what happens after we are thus still much in the dark. The investigation is not a savoury or attractive one, even for strangers. But the processes involved depend largely on certain factors, especially:—

a The age of the body. The soft fabric of young frames decays quicker than those of mid-age, and still faster than the withered tissues of the old.

b Sex has less influence than idiosyncrasy and temperament and chemico-vital composition. Flabby and full-blooded sanguineous frames decompose quicker than drier, nervous temperaments.

c The diseases of which individuals die affects this largely. Contagious ailments cause rapid decay, and others also, as the scorbutic.

And all this because these factors either promote or tend to prevent the two chief processes involved; viz., the primary chemical conversion into adipocere, and the secondary into putrefactive elements by the agency of bacteria and larger forms of vegetable and animal life. Most people know how different is the length of time some bodies may be and are kept safely and without offending sight or smell, before interment. After that Devergie of the Paris Morgue found that it took four or five months to convert the flesh of a corpse into adipocere; an oleaginous substance between fat and wax; that is an artificial fat made by chemical decomposition. After this the body either slowly dries up and is converted into dust; or it is disintegrated by the moister influences and processes of decomposition; that is the vital and chemical means

by which minute forms of animal and vegetable life destroy and disintegrate dead higher forms of existence. Both of these processes are either aided or opposed by certain factors, some within, others external to the corpse: which it is necessary to study more fully to enable us to understand earth burial.

2nd. Natural history. How human bodies decompose and become at length resolved into dust and their original elements, partly by chemical means, partly by the reconstructive and reconvertive agency of minuter forms of life, animal and vegetable, is yet comparatively little known, because an intricate, difficult and distasteful subject. Like those of ocean depths the fauna and flora of graveyards and even of those parts of the earth's surface that lie nearest the all-vivifying air in the usual graveyard depths, are subjects yet far from exhausted. This is especially true of the minute invertebrate, and still more of the microscopic forms of life which play the chief part in and are thus of chief interest to the living in connection with the disposal of the dead. Graveyard natural history is not yet thoroughly worked out; especially the microscopic: although the various forms of minute animal life visible to the naked eye, which prey on decaying human bodies, have lately been catalogued and are pretty numerous. The life history of these likewise requires elucidation; and as part of this, their distribution in depth and latitude, and as regards nature of the soil. Like other minuter forms of animal and vegetable life, these require air, moisture, heat, and their constituents for their life and development. They necessarily penetrate the soil according to its porosity. This again varies with the physical nature of the soil: sand, gravel, &c., being more permeable than clay for example. Moreover, each form of animal and vegetable life has its favourite soil and environment. Considerations like these go far to shew how extensive the subject is that comprises the natural history of the many different varieties of minute plants and animals, especially that all-important and universally distributed form, the bacteria, which not only prey on us during life and cause disease, but help to dissipate us after death. Each soil has its own varieties. We want to know what soil possesses most of those which hasten decomposition; what depth best aids these and our object and so on. All microbes are not noxious to Man during life, nor are all of them cannibalistic:

whether found in air, earth or water. Others, however, are noxious and disease-inducing. Others again in all three elements, the earth included, may be innocuous to Man himself although fatal to those microbes that are humanly lethal. Microbes prey on one another. Rain washes the air of its morbific particles of dust and microbes. While it is possible that earth is a filter for both and fatal to many microbic forms as these pass into or through it. Microbes and bacilli are plants; like which they cannot exist without air, water, and heat. These factors develop and strengthen; while a deficient supply weakens and sterilizes them. An absence of all three devitalizes and kills them; their spores being hardest to die, *e.g.*, the bacillus of anthrax. So also carbon and nitrogen may be equally necessary for their existence. No doubt the ærobic or air-breathing varieties are strongest, most numerous, and flourishing nearest the surface soil, where the air is densest and their air pabulum most copious: and become numerically less and physiologically weaker the deeper we go. Possibly therefore the latter is freest from those varieties of microbes which prey on the dead. Still more is this likely to prevail with the larger corpse preying invertebrata. Depth has thus to be considered in earth burial. But the natural history of such microbes is even less known as yet than that of those which so often cause disease in the living subject. So, too, of the chemistry of earth dissolution, the generation of fœtid gases, semi-fluids, fluids, and semi-solids, and indeed of the whole subject of graveyard decomposition we are still very ignorant: and of the changes which occur until the dead body becomes at last resolved into "dust" and again forms part of Mother Earth.

3rd. Climate influences body disintegration mainly by its heat or cold and its moisture and depth of their penetration. Extreme Arctic and Antarctic cold will freeze and so indefinitely preserve a dead human body buried there, as it preserves the flesh and tissues of the lower animals. Tropical weather does the reverse and hastens decay. The aiding, disintegrating influence of moisture is also strong there. On the other hand dry heat is preservative and no doubt contributed largely to the perfecting of Egyptian mummification and preservation. The dry climate of the Arabian Peninsula, where the Hebrews "wandered"

and buried their numerous dead for forty years, was very like this, possibly drier. And, although to a less extent, the dryness of the climate of Judea, at least at certain seasons, is illustrated in Holy Scripture thus. "Rizpah, the daughter of Aiah, concubine of Saul, watched for six months," from the beginning of barley harvest in April to the rainy season in October "till water dropped upon them out of heaven," to guard the dead bodies of her murdered kinsmen from dogs, vultures, and other beasts of prey. So long did they hold out from decay in the dry atmosphere of Palestine. On the other hand decay is quicker in moister, warm air, and no doubt very rapid in still more saturated and hotter tropical regions: a fact, however, which cannot be similarly illustrated, as with moist, temperate regions like that of Paris. Devergie shewed that the muscles of the bodies in the Morgue kept their natural form and hue for $2\frac{1}{2}$ months after death: while up to $3\frac{1}{2}$ months the scalp, eyelids, and nose so far retained their ordinary features that the age might be guessed. In $4\frac{1}{2}$ months the face is completely destroyed, the bones become brittle, and the bulky neck and thigh muscles are converted into adipocere. After this, decomposition and decay and transformation into the original primary chemical elements, partly by chemical forces and partly by minute forms of animal and vegetable life and microscopic bacteria goes on, till ultimately the dead body becomes practically "dust and ashes," even the hard bones. But the minute details of the process, what helps and what hinders it have not yet been closely observed and chronicled. Climate evidently has a considerable influence on graveyard decomposition according to the depth of burial.

4th. Nature of the soil. Earth is very varied according to the geology of a graveyard district. Usually that selected is largely composed, like most soils near the surface, of vegetable or animal humus. The former is obviously best; that is ordinary black, brown, or reddish earth or clay, sand, or gravelly soil. These have their different points, good, bad, and indifferent. Thus sand and gravel are dry; clay damp; animal humus more slowly destructive than vegetable, and so on. But very often there is not much choice when a graveyard site has to be selected, and then we can only select the best available.

5th. Locality. The usual burial grounds for communities,

both large and small, have long been urban and often round or near churches, for sentimental reasons and custom. Modern thought deems this very unsanitary and therefore highly objectionable. Because noxious disease-making gases may be given off to render the air morbific. Or bacteria may be generated by decomposition to make the surface soil unsafe to health; or to contaminate subsoil springs. Hence why rural cemetries are now adopted, away from massed human beings; thus reducing danger to a minimum. On this subject the Pentateuch gives a valuable indirect hint. No human burials, not even the burial of animals sacrificed at the Tabernacle took place near or around the central Tabernacle or within the confines of the camp; but possibly only well beyond the cattle and sheep folds and thus beyond the human community. This health hint has thus lain unused and unnoticed in the Holy Scriptures for over 30 centuries.

6th. Depth of grave and number interred. Like all else in Nature, Earth's duties and processes cannot be safely overtaxed; but are only fitted for and able to accomplish a certain amount of work. Earth's disintegrant powers, physical, chemical, floral and animal, its chief agents in effecting resolution and reduction of the dead body are limited. A certain quantity of earth can only act satisfactorily on a given amount of human tissue. Altogether, apart from sentimental motives, it therefore seems unwise to crowd too many dead bodies in one grave, whether coffined or not; and to put them in too close contact. And wise to make graves deep and thus removed from surface interferences, while giving resolvent Mother Earth and its aiding forces full play and room to do effectually what is required of them. To do this is not only to aid Nature's forces and its laws in their work of destruction of the dead, but also to aid their hygienic forces and laws for the living. For Nature is the Earth's chief sanitarian, by means of its soil, air, and water, and its chemical, physical, vital and other processes and forces. By burying deeply and sparsely, we permit Earth to resolve the soft parts of the body by its own slow but deft methods; and thus lessen the danger of air and water contamination to endanger the living. To put too many bodies, even in coffins, in close contact in one grave is assuredly a great and dangerous mistake of modern life; from which we now happily seem to be emerging. If it is necessary to bury more than one

in one grave, some distance should therefore separate each. So also, and for the same reason, contiguous graves should not be too close. But these matters will also depend largely on other factors, especially the nature of the soil, whether humus, gravel, sand, clay, &c. Also on the climate, whether cold, hot, or temperate, moist or dry, &c. These questions are not mooted in Holy Scriptures. We may therefore presume that one body was usually put in one grave. Eight occupied the Cave of Macpelah, namely, Abraham, Sarah, Isaac,, Rebecca, Jacob, Rachel, Leah, Joseph. But that was evidently roomy, away from living communities, and never opened except for a new occupant, at long intervals, sufficiently lengthy to be safe for the living to enter.

7th. Coverings of the dead body. In modern as in ancient times these vary according to local or national customs: and usually take the form either of the ordinary close-fitting garments, or of lighter and looser grave clothes; the main object of burial being to permit Nature to decompose the lifeless body as quickly as possible; and to hide this process from living though loving eyes. The latter, that is light and loose grave clothes, are obviously the best, as they permit the closest contact of the disintegrating agent and the body to be resolved. The best of all to aid this is obviously one fold of thin open material. In this the Holy Scriptures sets an example by citing the grave clothes of Jesus (Luke xxiv. 12); Lazarus (John xi. 41; Mark xxvi. 46); and others; the former linen (Mat. xxvii. 60), and in both with a head napkin (John xi. 41; John xx. 7; Mark xxvi. 46), evidently to tie up the chin, as we now do. Both of these had cave burial, doubtless for clearer miracle demonstration. But the same kind of clothing was usually followed by the Jews in all ordinary cases of ordinary pure earth-burial (John xix. 40); and no doubt also by the earlier Hebrews and by those of Mosaic times and the Wanderings; and that intentionally and by Divine instruction for sanitary reasons, to permit Nature's best disintegrator, common earth, to exert its highest power by coming in close contact with the body. That the ordinary manner of the Jews was, as it now is, to bury (John xix. 40) is bona-fide underground or earth burial is clear from their graves, and also from the language employed in speaking of their dead. Thus Jacob said to Joseph, "bury me in my grave I have

digged for me in Canaan" (Gen. l. 5). His grave, like those of Macpelah's other occupants, was dug out of the earth or rock composing the side or far end or floor of the cave. Jacob, on losing Joseph said, "I will go *down* to the grave to my son (Gen. xxxvii. 35). Job says "they go *down* to the grave" (Job xxi. 13); he who "goeth to the grave cometh *up* no more" (Job vii. 9). The good King Josiah strewed the dust of the idolatrous images *on* the graves of those who had sacrificed to them (2 Chron. xxxiv. 4). Thin grave clothes and approximation of earth thus combined to aid speedy disintegration.

8th. Mode of interment. Recollecting first that our chief object in burial is not to keep our dead bodies long, but to let nature dispose of them in her own way, and that quickly; and second, that common earth is Nature's best disintegrator in this way, and the means obviously designed by God and accredited in His Bible for this important purpose, it should evidently be our chief purpose to aid Nature's efforts by bringing the two main factors, the body and the soil, in the closest possible contact all over. The thin linen material used for our Saviour was therefore, and doubtless designedly a model covering, for sanitary and social reasons. But it seems decidedly unwise, except in special cases, like Joseph's, for transport (Gen. l. 26) to put our dead into coffins, caskets, and other envelopes of wood, lead, stone, &c., as this materially prevents Nature's best methods, by completely preventing the access of earth unless constructed so as to let this have more or less free entrance; and the unoccupied part of the casket filled with the same in still closer contact. Mummification by spices, &c., preserves the dead body much longer in caskets; but that only prolongs the disintegrating process and does not give immortality such as they desired in ancient Egypt. Hence why the Mosaic law legislated against it. Vaults, urns, &c., of brick and stone are mineral, but they are not the composite mineral, earth; and the outer enclosure is far from the body to be chemically acted upon. Earth alone can resolve the dead body best after Nature's own incomparable methods. It is Nature's universal mineral, and of world-wide application for humanity generally. Urns and cenotaphs are practically as faulty as the pyramids for judicious burial; like which they usually spring from pride. Earth alone is fully

competent to resolve the dead human frame into its primary elements quickly, and innocuously for the living. Our wisdom is to aid it; and study how best to do so and avoid unwise interference. Vaults, coffins, &c., are air cavities of varying size, which keep the body away from the resolving agent. The majority of the Hebrew burials, from the Exodus onwards, were doubtless uncoffined; and grave clothes alone used. They carried one coffin with them, that of embalmed Joseph, on its long journey to Macpelah: and the bodies of his illustrious ancestors. Complete immersion in earth, well chosen and closely approximated, is the natural God-appointed, Bible-endorsed, mode of disposal of dead humanity; dust resolving itself to dust. By neglecting this or adding to it we work against Nature and Nature's laws, that is God's. By permitting Mother Earth to do its chemical work quickly and well is better both for the dead, and hygienically so for the living.

9th. Early burial: was compulsory under the Mosaic law to prevent widespread "uncleanness" from touching the dead body, its tent, &c., &c.: thus compelling speedy disposal. Thus was Egyptian mummification discountenanced, the dead body relegated to its proper new place in God's creation, and hygienic danger to the living lessened. To "keep" dead bodies long, especially in dwelling houses, is wrong and hygienically dangerous, though perhaps sentimentally pleasing.

10th. Simplicity in burial. It is natural and seemly to follow our dead to the grave, as they did the widow's son of Nain (Luke vii. 14); but the procession was as simple and unostentatious as the covering of the dead body was plain, and not costly like that of the Christ, supplied and applied by Joseph of Arimathea, a rich man (Mat. xxvii. 5), who realized the honour and need have spared no expense.

The combination which aggregates the majority of the best of these factors to facilitate body decomposition, is evidently the best, and that which we should strive for. The Holy Scriptures furnishes us with this, and thus gives us several very valuable hints regarding the disposal of our dead; and indirect suggestions, both social and sanitary. Thus:—

a That bona-fide earth burial "after the manner of the Jews," that is subterranean (John xix. 40) is the best,

because the Bible-endorsed and God-sanctioned mode, though not distinctly appointed by a distinct Divine law: doubtless because already a fixed custom and originally God suggested; possibly in Adamic days.

b Mould or virgin soil of vegetable, better than animal humus, is the best earth. The tomb in which Arimathean Joseph put the body of our Lord, was previously untenanted (Mat. xxvii. 60; Luke xxiii. 53).

c The earth for burial should clearly be dry and well drained, as the burial caves of our Lord, Macpelah, &c., obviously were.

d Neither bodies nor graves should be too close to one another. Macpelah was evidently of considerable size, where each body could be placed in its own recess specially *dug* in the side or into the soil for it. Jacob's grave niche was ready (Gen. l. 5).

e The body and the earth should not be kept apart by coffin or vault of any kind, but separated only by clothing as thin as consistent with decency. If coffins are used for conveyance they should be of open work: and the contained body surrounded with earth.

f Their burial grounds were not around or near their tabernacle or temple like ours around churches; but away from humanity and beyond the camp.

g Their lepers were doubtless buried, as they had lived, apart from their fellows (Numb. v. 2); a suggestive fact inferentially for all contagious diseases; especially the most virulent acute ones, like plague, yellow fever, cholera, diphtheria, &c., &c.

h Subterranean burial gives less chance of apostasy by tomb worship; so prevalent even now, not only among Christian peoples and the Jews, but among the teeming millions of China and Asia generally.

k Burial in artificial or natural caves of earth or stone cannot be said to be advocated or endorsed by Scripture. Jesus and Lazarus were cave-buried for a definite preordained purpose; that the latter might be raised from his seeming and the former from his real death.

m Individual or popular cremation are not Bible endorsed. The hard bones of human beings last much longer than the soft tissues; often for hundreds of years. We cannot yet tell exactly how long under favourable circumstances. In the specially dry climate and little or never disturbed sandy or rocky soil of the Sinaitic Peninsula, they ought to be long preserved. If the site of the camp at Sinai, where 3,000 Hebrews were slain for idolatry (Ex. xxxii. 28); that of Kibroth, where there was a very great plague (Numb. xi. 33-4); that of Taberah, where fire from the Lord consumed many (Numb. xi. 1-2); that of Kadesh, where in the rebellion of Korah 14,700 died of plague (Numb. xvi. 49); that towards Eziongeber, where much people died of fiery serpents (Numb. xxi. 6-7); or that of Shittim, where 24,000 died of plague (Numb. xxv. 9); some of these skulls or the harder human bones might still be found to bear witness to the truth of that portion of Holy Writ and early Hebrew history: and to prove definitely how long it can oppose natural disintegrating forces. Such human "foot-prints on the sands of time" would indeed be invaluable.

PART III

HYGIENE OF DISEASE (CURATIVE)

"The law of the Lord is perfect" (Ps. xix. 7; Prov. iv. 2; Neh. ix. 26).

PART III

HYGIENE OF DISEASE (CURATIVE)

CHAPTER I

THE HYGIENE OF DISEASE

"How shall we cleanse ourselves" (Gen. xliv. 16).

Modern secular medicine deserves credit for having discovered that not only does the human body require to be cured of its manifold ailments, but also that even its health needs to be taken care of and preserved: so that humanity at all times requires care and a certain environment with definite hyigenic surroundings to effect this. But modern common sense has advanced still further, and has concluded that the diseased human body also requires not only hygienic care, but that it needs this infinitely more than does the healthy frame; and a far more choice sanitary environment to aid other restoratives in their cure; to join forces with and thus help other surgical and medical appliances to aid the great and chief healer, Nature, and its implanted vis medicatrix in their beneficent Heaven-bestowed efforts. A careful and wise hygiene is necessary for health; it is far more so in those frequent semi-pathological, semi-physiological conditions of the male and female frame, that are not quite and not altogether disease; and still more is it necessary in the multiform aberrations from sound health that we term disease.

The human body in disease must be regarded as a focus generator and disseminator of impurities more or less poisonous to all humanity around it, by tainting the atmosphere and thereby other things, such as the clothing, food, bedding, drink, &c. The skin, lungs, and every other excretory organ of the ailing person and their products are one and all thus vitiated and unhealthy. And in a certain class of diseases, *e.g.*, the exanthemata (small-pox, diphtheria, scarlatina, &c.), the body is an extensive and rapid breeder of their special disease germs which each infected person imparts to and radiates over its environment, and to the air, bedding, and all that these come in contact with. Hence the patient not only lives in but makes a highly vitiated environment, as do his attendants in minor degree. And the sick room, ward, or hospital is a centre of diseased conditions and of disease-generating factors; and

therefore a danger to the household, street, locality, community, or even the nation. Hence why all this requires special attention and care to have such undesirable surroundings amended and reduced to a minimum if they cannot be wholly removed; by what is termed the hygiene of disease: that is the sanitary measures necessary for the sick-room and for ailing persons.

And, as in health, so in these half or fully developed diseased conditions, it is not only one but all of the many hygienic factors that have thus to be specially attended to in sickness; because then the body is unusually, nay morbidly sensitive to unhygienic agents and factors, apt to aggravate the current disease and perchance precipitate serious disaster. The factors that make the hygiene of health; the diet, exercise, rest, cleanliness, &c., &c., have all to be attended to with extreme care; but some may have to be increased, others diminished, others variously altered, to meet the new conditions of disease. Thus, the exercise may have to be reduced, the cleanliness increased, the diet and drink altered, and so on. Hyper-cleanliness is unavoidable, as a rule. For in disease the body generally, and especially the ailing part or organ, or its co-workers (1 Cor. xii. 14) are usually throwing off effete and poisonous matters with great activity. This process has clearly to be helped by unusual body-cleanliness, to remove the cutaneous and other excretions, now doubly poisonous. And this again to be aided by cleanliness of everything else that concerns the ailing one, purity of the air, food, drink, &c. So also of other hygienic factors, care of them has to be increased to help nature and medicine to effect a cure. Nature works most satisfactorily after, not our human modes, but after the methods devised by the author of its forces and its laws.

The Biblical Hygiene of Disease

Human experience is largely based on theory; while the dictates of the Holy Scriptures are facts. Theories being human are fallible: facts are Divine and incontrovertible. If the Bible says aught on this subject it must therefore be of infinite value. The importance of the hygiene of health has been shewn to be not a modern or a human discovery; but one that is ancient, Biblical and Divine. And, that disease likewise requires its special hygiene; and the nature, importance and value of this, are also not modern and human discoveries, but ancient, Sinaitic, and Divine revelations of supernal knowledge is also true. These were all pointed out over three thousand years ago in the Holy Scriptures and the Sinaitic code of the Pentateuch.

It is with the hygiene of disease as with the hygiene of health. If we trace its history backwards we find that it has made great strides during the past quarter or half of the last century. But previously it was an unknown and undreamt of study. The old physicians, such as Galen, Hippocrates, and others, knew little of it. Their main study was disease itself and how to cure it; not its hygiene or prevention. So, too, back to Esculapius and the dark ages of medicine previous to that era for at least 500 years, until we come to the days of Moses and the Wanderings and the Pentateuch written by him; that contains a detailed account of the Sinaitic law delivered by Jehovah, the Divine sanitarian, for the immediate study and use of His chosen people, the Hebrews. In this code we find not only the laws for the hygiene of health, but also others for the hygiene of disease; that conjointly form a well-developed sub-code, containing the essential factors in that special department of sanitary science. It is this latter that we have now to critically study. Jehovah had already legislated for the hygiene of Man's multiple entity, his soul, mind, morals, social, civil and political entity: and also for his body in health. To this He now superadds, to complete the code, an outline of the hygiene of disease.

The Holy Scriptures is not only the earliest instructor in hygiene, but also the earliest to point out, *first*, that sanitation is as necessary for disease as it is for health; and *second*, that the same agents that suit the one are also those best adapted for the other. As has been pointed out in personal and public hygiene, the human body in health can only be kept so by the aid of certain agents, which help to promote that health, and are thus termed hygienic or sanitary agents. These include cleanliness, air, food, drink, &c., &c. And it will be readily understood that if the body urgently demands these to preserve its health and strength, they are tenfold, nay, a hundredfold, more necessary in its diseased conditions, to help to restore that disease-diminished health and strength. Indeed, these hygienic agents for health-preservation and health-restoration are not only identical; but often as mutually necessary for the end in view, as is medicine. Judicious sanitation and wise medication must indeed go hand in hand to dispel disease and thus restore health. The most prominent of our modern sanitary agents are exactly those we find were advocated and employed in the Pentateuch over 3,000 years ago: and are, excessive cleanliness, pure air, isolation, and disinfection. This is only another instance of Bible teaching, antedating modern secular discovery by many years; and even surpassing it in its comprehensiveness, breadth of view, and suggestiveness, as well as its applicability not only to selected

diseases but to disease generally. As with the code for the hygiene of health, many of the Hebrew laws for the hygiene of disease were far-reaching and devised to inculcate cleanliness, the chief fundamental and typical factor in all hygiene, individual, tribal, national, and racial; both in the hygiene adapted for health preservation and in that for disease cure. The Mosaic or Sinaitic hygiene is strong in that part which is most apt to be ignored, forgotten or neglected, namely curative hygiene or the sanitation of disease. Of all the ancient monuments of antiquity that testify to the existence, wisdom and love of God to Man, that literary monument of antiquity, the Holy Bible, is the chief; and that which testifies most deeply. And in nothing more does it do this than in the hygiene of disease.

The Sinaitic code does not enter fully into the subject of the hygiene of disease; not even so minutely as it does into the hygiene of health. It merely gives outlines of certain themes from which the methods may be inferentially devised and extended to other conditions of similar nature; and also to diseases generally. They are hints, but broad ones, for general application.

The human abnormalities of health spoken of medically in the Bible are six in number; viz.:—

1st. Four of the most frequent conditions or states in human male and female life, viz., *a*, the periods; *b*, marriage; *c*, childbirth; *d*, pollutions. All of these, although physiological and healthy, may become pathological and dangerous.

2nd. One example, namely, issues, of a great and frequent class of diseases, non-contagious in the strict sense of the term; that require special medical and also hygienic treatment; and are inferentially suggestive of the extension of hygiene to all non-infectious or contagious ailments, simple, malignant, acute, and chronic, but non-communicable.

3rd. One example, viz., leprosy, of a slowly acting chronic contagious disease; typical of the large and increasing class of infectious and contagious diseases; and therefore suggestive of the application of the hygiene to infectious and contagious diseases generally, to aid their medical treatment and cure.

As a selection from the long category of human ailments and frequent physiological conditions, the six selected by the Divinity to illustrate this subject, include the most frequent that can occur in the entire human race under any circumstances, and that in their frequency probably take the following

order: 1, intercourse; 2, periods; 3, childbirth; 4, pollutions; 5, issues; 6, leprosy.

In the following criticism of what the Bible says regarding these, we shall see that the Divine Sanitarian, by His Holy Scriptures, and revelation of many centuries ago, initiated not only that form of preventive hygiene which forestalls disease; but also curative hygiene, or that form we are now considering which aids the cure of disease. Moreover, study of the latter shews that He also initiated:—

a The chief hygienic means which prevents our important human physiological functions from becoming morbid and going beyond the bounds of health; viz., childbirth, the periods, pollutions, marriage.

b Also by indicating those which tend to aid the cure and also the prevention of disease of a non-communicable, non-infectious type, *e.g.*, issues; and inferentially, therefore, all non-contagious ailments; medical, surgical, obstetric, gynæcological, and otherwise.

c Also of indicating those which tend not only to aid the cure, but also to prevent the spread of infectious and contagious diseases, such as leprosy; a hint that was doubtless meant inferentially to lead us to act similarly towards other and indeed all infectious and contagious diseases: thus completing the catalogue, and covering the entire round of diseases and the complete morbid catalogue.

The Holy Scriptures thus legislates either directly or inferentially for the two great departments of hygiene; that of health and that of disease. It teaches the general leading principles of both departments of sanitary science: and by applying them practically on the Hebrews in specialties taught their application in the generalities of morbid action.

The close resemblance and indeed identical nature of the suggested hygiene in all of these cases, and therefore its inferential close similarity in all ailments, is noticeable. This included the avoidance of secrecy; no concealment was permitted. Notification, inspection, isolation, disinfection, were all open and imperative. What concerned the individual was thus shewn to concern the tribe and the entire nation; and vice versa. Isolation, varying in length with the nature, intensity, and stubbornness of the disease, was a most important item, as it permitted rest, prevented the spread of disease, incited to avoidance of a repetition of the annoying ailment. Cleanliness, the chief factor in all hygiene, was prominent in all. This and isolation were to go hand in hand. The wisdom of this has been made apparent by late research. The great danger during these various conditions and critical discharges, especially

of childbirth, the periods, issues, &c., is now known to be mainly bacteric, as indeed it is in most ailments, especially contagious and infectious ones. Bacteria flourish most and are therefore most numerous and in the mass dangerous in certain places; and vice versa. They form an integral and important part of the dust particles that float in the air. These particles and therefore the bacteria are very scarce in some places, and very abundant in others. Thus, Mr. John Aitken found that in the air of the elevated parts of Switzerland, such as the Righi, there were very few particles. In the wilder parts of Argyleshire the proportion was about 200 per cubic centimetre. Whereas in crowded Paris and London it rises to 200,000 particles per cubic centimetre. The air of the open desert beyond the camp would clearly more resemble the atmosphere of the Righi or Argyleshire, and be thus cleaner and healthier than that among the Hebrew tents and cattle, that is the bacteria-loving and infested foci. It was to the purer air of the former and from the impure air of the latter that the Divine Hygeist sent the isolated ailing.

The Holy Scriptures allude incidentally to many other diseases and conditions besides those above named; and it chooses one, namely leprosy, as a type of sin. But it never advises regarding their cure; or points out or even hints at remedies. Nor does it do this even for the diseases and the conditions now named. It confines itself alone to preventive or hygienic measures. Again, while both the hygiene of health and that of disease are spoken of; the latter subject is given in scantier detail. The hygiene of health is very fully spoken of in the Holy Scriptures; and diet, drink, rest, exercise, cleanliness, and the many other great factors which everywhere and in every age and condition combine to preserve health and prevent disease of body and soul, judiciously impressed on the willing scholar; so that all sorts and conditions of life may benefit by their perusal. But though the Bible only illustrates the hygiene of disease by a very few selected examples, how judicious is the selection! For not only are those conditions and diseases such as have affected and will continue to affect men and women from Adam and Eve downwards to the last of the race: but they are all universal and world-wide conditions, and most important ones. Moreover, by inferential application the hygiene enforced by the Divine architect and engineer of the human forces at work during those physiological and semi-pathological conditions is vividly suggestive of that which is equally or even more necessary during the greater disturbances of actual and prolonged disease of all kinds. The whole field of disease and every complaint is thus included in the small Jehovistic selection; shewing how broad and deep His grasp of the subject is: and how masterly and comprehen-

sive His formulated hints and laws on the sanitation necessary both for the cure and the prevention of disease.

The physiological conditions for which Jehovah legislated hygienically were not uncommon ones during the Wanderings. In the Desert marriages, both tribal and inter-tribal, would be constantly occurring among a people numbering over two millions, of whom 600,000 were adult fighting men. Childbirths would also be of daily occurrence among phenomenally prolific women, to whom miscarriages were unknown (Ex. xxiii. 26). The periods would be ever-recurring among such a multitude of healthy adult women. Pollutions would possibly not be abnormally common among the men: all of whom, like the women, had phenomenal heaven-bestowed health. These laws were not altogether and doubtless not so much meant for the Desert days as they were anticipative of their later national life in Judea and elsewhere, when the race would be far more numerous and scattered than during the Wanderings. Male and female issues, the type of male and female diseases generally, might be unfrequent among the health-preserved people of the Desert (Deut. viii. 4; Ps. cv. 37); though perhaps more common in its minor forms. But they would doubtless be more frequent later on when there was more depravity and its frequent sequel disease. Leprosy, the type of the infectious and contagious diseases, was unfrequent among the Hebrews of the Wanderings; and so far as we know they had no other infectious and contagious disease then unless we deem the disease-inflictions mentioned in Numb. xi. 23; xvi. 46; Ex. xxxii. 35 such: and that for the same supernal protective reason. But there may have been some, especially among the "mixed multitude" of aliens, when they left the Red Sea, derived from Egypt and the Egyptians, to whom possibly they preferred to return when camp-expelled, as they would no doubt be at Sinai. But doubtless it, and perchance other contagia would become more prevalent in Judea from greater contact with other nations. Moreover, these laws for disease-prevention and disease cure were not bequeathed from Sinai for the Hebrews alone but for the Gentiles of a later day also, and even for those of that period likewise, had they been wise enough to have them, and acknowledge the God who devised them: as well as for the Jews and the Gentiles of all time. Jehovah's laws are of universal human application. Nor are those laws for the hygiene of disease, any more than those for the hygiene of health of interest and import to medical men only: or are they comprehensible by these alone; but simply and easily understood by the laity, for whom they were mainly meant.

Over 3,000 years ago Jehovah divulged for our racial information the great fact that the multiple forms of disease may be

divided into two great primary classes, the infectious and contagious, and the non-infectious and non-contagious. And He furthermore pointed out that both of these kinds, in other words, diseases generally, were preventible. The Sinaitic code, moreover, was the first not only to point out but to practically apply, four of the great modes or hygienic factors for meeting, opposing, and controlling infectious and contagious ailments; and often, too, those that do not possess this highly objectionable character: namely, notification, inspection, isolation, and Disinfection. And it should be noticed that all of these procedures have a place in the hygiene of the physiological conditions; the simpler diseases; and the infectious and contagious diseases alike. They were all imperative, and their evasion or neglect was punitive. The reasons for this were doubtless threefold; viz.:—

1st. It was God's will. Childlike obedience was being taught as a part both of duty and religion.

2nd. They were being taught the elements and even the great fundamental facts of health-preservation and restoration from disease; that to make well is good, but to keep well is infinitely better. The Hebrew women and men were being taught an invaluable lesson, which it would have been well if it were better understood popularly at the present day; namely, that it is as necessary and as much, if not more, a duty to attend to these "private" conditions as to care for all other bodily functions, if we would maintain health, and that this can be done without demoralizing or lessening the religious instinct, but quite the reverse. The human body then, as in New Testament times, was regarded as sacred and the "temple of the Holy Ghost" (1 Cor. vi. 19; 1 Cor. iii. 16); and all its functions spoken of reverently and purely. And it should be so now. All through the Pentateuch and the Sinaitic code the changes incidental to females, married women, and to both sexes regarding the reproductive function, are alluded to in similar manner; not even in cold, practical medical business fashion, but as it were from the Holy of Holies and the immaculate mind from which they emanated (Lev. xv. 31): and combined with sacrifices and rules that aimed at increasing not only the psychical and moral as well as the corporeal purity, but also at preserving the racial vitality, increasing and improving the entire Hebrew race.

3rd. They were being taught how much more they are indebted to their Divine Leader than they generally

and popularly knew. They had been already taught, soon after entering the Desert, their dependence on Him for their food, clothing, drink, safety, health, and vigour. Now they were being taught the sources of disease, and how to avoid them, by simple, practical, easily followed methods: and also the many other facts regarding disease, as to contagion, infection, or non-communicability, and so on, as already stated.

4th. It was also meant to teach the Hebrews that health, life, and the body, as well as the soul, are gifts from God to be cared and accounted for, and which it is both their interest and duty to preserve. Also that disease was, as it now is, a God-permitted event, often perhaps Heaven-sent, both now and in the days of the Wanderings; but still theirs or to avoid or to cure by hygienic or medical forces and medico-priestly skill.

5th. It was also meant to make the Hebrews fully realize how much they owed to their Divine Leader by formulating, revealing, and practically shewing them how to carry out these medico-hygienic laws. For He thus handicapped the rest of the complex and complete Sinaitic code by catering, planning, and legislating for them in every conceivable way: nothing they required directly or indirectly being left out, and much being superadded they would never have dreamt of: and all with a view to increase if possible their dependence on and reverence, gratitude and love for the Giver.

The Sinaitic laws for the hygiene of disease were not only theoretical but practical. They were not only taught to the Hebrews and their children with the rest of the law, but enforced. Moses wrote them, as Jesus affirms, long subsequently, but he did not make them. They are Divine, as Moses himself testifies; formulated and devised by Jehovah. None of the Jehovistic laws can ever become obsolete, antiquated, or effete. None can be abrogated or annulled except He permits; as it was with the medically and typically ceremonial laws of the ancient Hebraic pre-Christian days, after having served their day and purpose, like the Hebrew Church and its ritual. That no human mind could ever have devised or thought of such masterly laws is proved by the history of meidcine and of medical men. And that, though over 3,000 years old, they cannot be superseded or improved by modern medical ideas; while the latter are or should be proud to have their work endorsed and if possible improved by such a sanitarian mastermind, are all facts worthy of notice, because they serve to shew

that even we scarcely yet realize how much we owe, and have for centuries owed, all unknown to us, to the beneficence of the God who created and still preserves us, individually and racially.

These Hebraic laws for the hygienic treatment of disease with the apparently irksome and troublesome rules they involved, including publicity, segregation, sanitation, and sacrifice were clearly not punitive because they had contracted disease, &c. There was nothing discreditable, sinful, or criminal in lawful childbirth, the periods, pollutions, or issues, *per se*. The laws, however, were all undoubtedly typical. By teaching physiological purity in disease, Jehovah led up to the equal need for spiritual, moral, mental, cleanliness in diseased conditions, as in all other phases of life; and to inculcate and carry religion into every event of life, especially the more critical, important and frequent ones. But they were also, and largely sanitary, and meant to inculcate the equal if not greater need for hygienic measures in sickness than in health. And, above all, the importance of avoiding the chance and danger of giving sickness to others by keeping apart, and thus avoiding the reception and carrying away of disease germs for cultivation; as well as by purity of the air of the sick-room and its cleanliness. These hygienic laws for disease were no more imposed as punishments than were the Ten Commandments; but were merely restrictive, preventive, and curative. These laws were undoubtedly partly typical. Disease among the early Hebrews, both priestly and lay, was a ceremonial disqualification which implied that not only the people but even the Levites, Priests, and High Priests were prevented from officiating ceremonially in their religious services. And the enactments which compelled all, the High Priest, Priests, Levites, Leaders and Laity, to undergo certain restrictions, were unquestionably partly typical. But they were not wholly so, but largely and strictly medico-hygienic.

These laws concerning the hygiene of disease for the early Hebrews were not purely theoretical, visionary or puerile, but practical, and preservative of the Hebrew health, especially when superadded to and combined with their still more elaborate system for the hygiene of health, to which they were a necessary but secondary adjunct to make the health code complete. Contrasted with modern secular theory and practice, these rules are not subverted, but on the contrary are endorsed, so far as the Biblical laws go, and that was sufficient for that early age of mankind and the then existent state of general and medical knowledge. Nor can any unbiassed mind attempt, with our present knowledge of disease, especially our belief in the influence of minute organisms in its production; to say

that these curative and preventive laws of disease were or are now to be deemed puerile or unnecessary, or only fit to be laid on the shelf as antiquated, absurd, and untrustworthy; but quite the reverse. Nor should we despise them because called Mosaic and credited to him as their writer (John vii. 19; i. 17), seeing that he himself disclaims the authorship and ascribes the sole conception and entire codification to the Deity. And no medical man or priest of that or of any later day has or could have conceived or elaborated these pathologico-hygienic facts; not even Moses himself, so imperfect was even his medical knowledge, prior to God's enlightenment of it at Sinai. No human mind could have elaborated or interpolated them any more than they could have the hygiene of health laws already spoken of. No one could have done this and given this great boon to humanity but He to whom His servant Moses fully, freely, and wholly ascribes them, namely Jehovah. These laws we are about to study are Divine. As such they cannot be deemed unreliable and despised. Nor is their authority to be doubted or authorship willed away. Though not uttered from Sinai like the Decalogue, and rendered incontrovertible as to veracity by over two millions of listening witnesses; the same timid people (Heb. xii. 21; Ex. xx. 19) bear testimony to their revelation to Moses in the Holy Place by their acceptance of them. They are undisputably Divine; a proof of the veracity of that portion of the Sinaitic code: therefore a proof of the credibility of the entire Mosaic code: therefore a proof of the reliability and Divinity of the entire Holy Bible. For, all of the two millions of Jews, though then awed for the moment (Ex. xx. 19) were not always or long Godly; and would subsequently have exposed frauds and falsehoods had they been so.

Although not usually awarded a place in the synopses of the Mosaic code usually found in Bible dictionaries and encyclopœdias; these Divine laws of the hygiene of disease are given by Moses as from God, and that as a distinct part of the Sinaitic code. Thus the Pentateuch speaks of "the *law* for her that hath borne a male or a female" (Lev. xii. 7): the *law* for the "flowers" (Lev. xv. 53); different *laws* for married life (Lev. xv. 18); the *law* for "pollutions" (Lev. xv. 32); the *law* for him or her that hath an issue (Lev. xv. 32); the "*law* for all manner of plague of leprosy" (Lev. xiv. 54). Medical minds at least will deem these curative and preventive laws of greater import than those, for example, for the poor, the alien, the criminal; incidents comparatively rare compared with disease; but which do find a place there. One and all of these laws for the hygiene of disease was as obligatory as those for the hygiene of health or any other laws of the many-sided Mosaic

code. Their infringement was equally punitive (Numb. xix. 20; xxxii. 23).

This Heaven-bequeathed hygiene of disease combines with the still more elaborate, equally practical, and far-seeing hygiene of health, already detailed in marking a new and most important era in the history of medicine of over 3,000 years ago: hitherto conducted on secular lines: an era inaugurated by the Deity and consisting of an altogether new and unthought of mode of meeting disease, namely, not by curing but by forestalling and preventing it; and that not by crude and uncertain human methods, such as incantations, witchcraft, astrology, sorcery, and other equally absurd modes, but by simple, feasible, methodical, easily understood and followed ways; which in combination constituted an elaborate scheme that indicated the Master-mind who had devised it. The Holy Scriptures, written thirty centuries ago, initiates the fact that disease requires its hygiene as well as health: and gives rules how to effect it. It points out the important hygienic facts, that if the healthy frame requires the constant and special care of its owner, its neighbours, and the nation; the disease-afflicted body requires far more attention, on similar yet somewhat different lines. The hygiene of disease is thus in some respects different from that of health, and requires its own study. The secular study of the hygiene of disease is a modern and indeed twentieth century one, like that of the hygiene of health. So that the Holy Scriptures in this matter is anticipative and antedates modern secular findings by ages. They do not enter the wide field of disease or its cure; but rather enforce and inculcate disease hygiene only: and extend it inferentially to the entire subject of human pathology, by applying its Biblical or Jehovistic methods to two diseases, issues and leprosy, types of two classes of ailments, and indeed of disease generally. The Holy Scriptures were the first to teach and practically enforce the necessity for and great importance of the hygiene of disease as an indispensable aid to disease cure: a subject totally different from the hygiene of disease prevention; although the two are necessarily closely intertwined, correlated, and interdependent as twin branches of sanitary science.

And it may be asked are not these laws of this section of hygiene another illustration of the Divine forethought, and inculcative of the many advantages of the prevention of evils, medical and otherwise, being wiser, better and easier than their cure? Another instance that proves how exceedingly broad and widely applicable are the Divine laws; in this point so very unlike the human? Jehovah goes straight to the mark and

settles finally and for ever what is required: and, unlike man, makes His hygienic laws as unalterable as the Decalogue: and as punitive when broken.

These laws for the hygiene of disease implied the necessity for medical-priest inspectors, whom Moses, the medically educated, doubtless appointed and led. These possibly had an appointed well-known place and tent, either in the camp or in its outskirts, for their work, and for the temporary convenience of the suspicious cases. Again, on the day of cleansing lepers, &c., it was the Priests' duty to go out of the camp to the leper colony, or the locality where issues, &c., or other ailments were isolated; to inspect these, and decide further on the cases, as to whether their isolation had to be renewed, or if they were to be freed and permitted to return to ordinary camp life (Lev. xiv. 1-3).

From the Bible text it will be evident that there were two varieties of isolation; namely, *first*, the temporary, in which the person was shut up in doubtful cases, perhaps in the camp (Lev. xiii. 5-13): and *second*, the permanent, in well defined and assured cases; when the individual was at once pronounced wholly "unclean"; and not shut up in the camp, but immediately banished from it (Lev. xiii. 12) to the "unclean" colony outside.

The physical and hygienic part of the "cleansing" ceremony after the isolation of leprosy, when cured, or when freed from suspicion, consisted:—

1st. In washing the clothes. Leprosy being largely a skin disease, the benefit of ablution will be apparent to remove effete skin and also cutaneous excretions, usually excessive in such warm latitudes as Arabia, Judea, &c.

2nd. In shaving all the hair, so apt as is now well known to receive and retain infection, and noxious effluvia.

3rd. To wash himself in water, that is to remove infectious particles. After this he might go into the camp, but had to "tarry abroad," that is keep out of his tent and so be isolated from close contact with his relatives for seven days more.

4th. Then he shaved the hair off his head, beard, eyebrows, and elsewhere.

5th. He washed his clothes, so apt to retain bacteri germs, &c.

6th. He washed his skin.

After all this he was deemed "clean" and proceeded with his purifying ceremonials and offerings (Lev. xiv. 10).

Jehovah thus, over 3,000 years ago, by means of His Sinaitic revelations and Moses, the Amanuensis of His Holy Bible, and its beneficent, God-like, anticipative teaching, pointed out clearly, long before the secular mind of Man even thought of it:—

1st. That the human body, not only in health, but far more so in disease, requires a special environment, and special care of its hygiene.

2nd. That some diseases are communicable from person to person; and even from one part of an invalid to another part (auto-infection): in other words, that there is such a thing as infection and contagion; and also infectious and contagious diseases.

3rd. That communicable disease of this kind may be prevented from spreading.

4th. How to effect this by simple means.

5th. Inferentially that all or most diseases, even the non-infectious, may likewise be prevented by suitable means.

6th. That isolation and keeping the ailing apart from the healthy, is one of the chief means of preventing communicable diseases.

7th. That cleanliness, the chief factor in all hygiene; and purity of all things affecting the body, the clothing, bedding, food, water, air, &c., is another of the chief essentials.

8th. The Divine Sanitarian was the first to prove the practical efficacy of His hygienic laws, by controlling the prevalence of leprosy among the Hebrews: and keeping other serious camp decimating infectious ailments from their midst.

9th. Inferentially He proved their equal applicability and efficacy for all time and for all peoples and climes.

10th. The Divine Hygeist initiated and exemplified on the Hebrews the necessity not only for individual but also for public, communal, and national reporting, inspecting, diagnosing, and separating infected from sound persons; and for having a large control of this kind over such cases.

11th. He also initiated the necessity for communal and national attention to inaugurate and enforce the

different factors that combine to form the hygiene of disease; even as He had elsewhere in His Sinaitic code pointed out, employed and enforced those appertaining to the hygiene of health, such as food, air, rest, &c., &c.

These God-designed and codified laws for the hygiene of disease and those for the hygiene of human health, combine to form part of Jehovah's larger biological code, or laws of life and living things of the stamp of Man. In order to give our fallen race, who much required it, the benefit of the knowledge; these were beneficently revealed to him by th All-wisdom, through the Hebrews at Sinai. But no one can imagine they were either devised or formulated then. Nor though in existence and operation, can we imagine they were devised or formulated even when Adam and Eve first saw the light, but had their birth in the Almighty Intellect long ages previously and in the "beginning," when the Universal Architect planned the stupendous creation He was about to evolve: and conceived the physical forces and laws for the material part of this: the spiritual laws and forces for its spiritual portion: and the biological laws and forces for that part in which both matter and spirit blend to form living creatures of the type of humanity.

Like all of God's laws, from the physical to the spiritual, so these of the biological section are "perfect" (Ps. cxix. 7; Job xxxvi. 4; xxxvii. 16; Deut. xxxii. 4); deep (Ps. xcii. 5; Dan. ii. 22; 1 Cor. ii. 10); broad (Ps. cxix. 96); unchangeable (Mal. iii. 6); and also eternal (Ps. xxxiii. 11; Deut. xxix. 29); and true (Ps. cxix. 142).

CHAPTER II

LEPROSY

"The Law of the plague of leprosy" (Lev. xiii. 59; xiii. 46).

That leprosy is a practically unknown disease in Great Britain we have largely to thank our wise and efficacious sanitary precautions, past and present. But the resulting popular ignorance makes it necessary for it here to enter more fully into details concerning this prominent Bible ailment, than into others already mentioned; in order to point out why it is that the Holy Scriptures have spoken so fully about it, and legislated so firmly.

Leprosy is a disease which:—

a Is and has always been not only one of the most widespread in latitude, but also;

b One of the most ancient in time, if not the first and oldest of ailments.

c Moreover, it is not a mild and innocent complaint; but very tenacious, insidious, progressive, contagious and incurable; but in its intrinsic nature one of the most terrible, loathsome, and important of human afflictions: and so shocking in every respect as to be only comparable to a living death. Because, from small beginnings, by covertly entering the body and the blood, at some initial spot it germinates and secretly though slowly yet surely spreads, over the whole frame, though not perhaps for years: involving, ravaging, frightfully mutilating, distorting, and eating up every member, organ, fibre, cell, tissue, and bone of the luckless being, till mayhap all are included, flesh, marrow and bones; toes, fingers, upper and lower extremities, the body itself, features, external and internal members generally, till at last it breaks out openly and manifests itself in tuberculous ulcers and swollen joints, which cause increased deformity and loathsomeness: till finally, arms, limbs, hands and feet lose their power and fall together; the amount of suffering thus caused being incalculable from a very

early period, so that death is welcomed as a happy release from the ruin. Though non-hereditary leprosy is truly an infectious disease; a character that adds to its repulsiveness; and helps still more to make its victims everywhere shunned. In the softer and less developed frames of children it begins and progresses thus; a scab appears in different parts of the body and increases. The hair falls from the head and eyebrows, nails decay and drop off, joint after joint of the fingers and toes shrink and fall away; the gums absorb; the teeth disappear; the nose, eyes, tongue, and palate consume; till at last the wretched deformed and maimed creature dies. When deeply afflicted neither parent nor child can recognise one another.

d Leprosy, so far, is incurable, and often baffles medical skill even to palliate. The patient's health and life career are practically ended. There is no going back. What a boon therefore it is to avoid or prevent such an affliction. We shall presently see when, where and how this was done; not by any human, but by the Divine Sanitarian: to inaugurate a new era in medical methods, the preventive.

As ours is a Biblico-medical theme, and one meant not for members of the healing art alone, it seems unnecessary to give a more minute description of this horrible and much-dreaded ailment. A mere outline of the salient facts regarding its nature, peculiarities, varieties, and the best modes of combating it, seems to be all that is wanted; followed by a contrast of the modern or secular with the ancient or Biblical modes of meeting an ailment as revolting now as it was then.

Leprosy is of several distinct species. There may be said to be four different forms; due probably as with all other infectious and contagious diseases, to the special affinity of the bacillus, which is its true cause, for certain tissues, an affinity differing in different persons or temperaments, according to certain still obscure laws. Thus:—

1. Non-tuberculated anæsthetic or nerve leprosy (Lepra Anæsthetica), in which form the nerves are the parts first and mainly implicated.
2. Tuberculated, nodular, or skin leprosy (L. Tuberculosa), in which the skin is largely and mainly involved.
3. Mutilating leprosy (L. Mutilans), in which the joints are chiefly affected.
4. Mixed leprosy, a combination of the other three forms, in which the nerves, skin, and joints are all involved.

The latest conclusions of the oldest, most practical and leading

medical minds of the present day, including Virchow, Hansen, and others of the Berlin Conference of Leprosy experts (*Lancet* 1897) are as follows:—

1. The cause of leprosy was long occult and mysterious. But what originates it is now known; relegating this to the fast increasing class of infectious and contagious diseases. Leprosy is a disease "sui-generis" created "after its kind" and arising from a specific cause: the prime and essential factor and real source, the "causa sine qua non est" being, there can be little doubt one of the microscopic vegetable organisms, contagium vivum, or bacillus (Bac. Lepræ, Hansen). This is always present, and at first exists in the resting, quiescent, spore or seed stage. The different varieties of the disease may be due either to a difference in the species of bacillus; or to bacilli of different degrees of virulence; or to other subtle factors in the person or external to him, difficult to define. Wynne and Ratee (*Lancet*, March 8, 1890) found the bacillus mostly in the median nerves in the anæsthetic forms. In other forms, especially the tuberculated, these were far more generally distributed either in the tissue-cells or free, after an elective affinity difficult yet to account for. The discovery of the vera causa by the microscope is comparatively recent. But Moses was an educated physician of phenomenal talent. Did not his comprehensive and original mind reason out the Jehovistic motive for the segregation, isolation, cleanliness, and disinfection, &c., inculcated for this disease by his Supreme Teacher? Like the presence of an intervening disturbing planet, suspected by Adams and Leverier long before its actual detection; and like the suspected origin of many infectious and contagious diseases by Pasteur, Koch, Klebs and others, long before the fact was actually demonstrated: so may we not believe that Moses, the astute and Heaven-taught savant, suspected or perhaps actually knew by Divine revelation, the true bacillary cause of leprosy, though he lacked the modern microscope necessary to verify it. How many illustrious men fail to pen all they know and think, before finishing their life labour? Far less could the many-sided mind of Moses do this, whose main mission was to learn, cultivate, illustrate, and teach deeper themes even than medicine.
2. The initial and quiescent or resting bacillary spore of leprosy lie dormant in the air, water, or soil before

entering the human body. The latter feat it accomplishes in the usual way, namely either by:—

a Contagion or contact, through the skin pores: or

b Infection by being breathed into the lungs, or taken into the stomach with the food or drink or body lesions.

So these bacteria spread disease from persons over families and communities and nations. The contagiousness of leprosy has thus been only re-decided by secular medicine and the microscope; but it was settled over thirty centuries ago by the highest of all and the only infallible authority, the Divine Sanitarian, and incontrovertible in His Sinaitic revelation. Here the Maker of both Man and the parasite pointed out their mutual relation.

3. These bacillary germs or spores cannot locate and enter on their second, adult or active stage of existence until they find a suitable nidus or soil in the human tissues or blood, in one or other or both of which they settle, germinate, grow and spread over the frame, carried chiefly by the lymphatics till the skin, nervous system, joints, &c., become affected in turn and disorganized. The precise way and conditions under which the Bacillus Lepræ finds an entrance and its life-history in the body, are not yet sufficiently elaborated. Probably it mostly and usually enters by the mucous membrane of the mouth or nose, in other words by the twin breath-filters. Stricker thinks the primary manifestation generally but not invariably begins in a specific ulcer of the nose, mouth, or elsewhere. This causes sneezing, expectoration, and affects the respiration, &c. This may be present for several years before it spreads to the lymphatics. It was so found in 128 out of 153 cases.

4. Leprosy being a germ disease is therefore communicable, that is contagious, though slowly and feebly: is long in finding and establishing a footing in the body: and when there it clings firmly, but yet multiplies, spreads, and kills very gradually. The Berlin experts do not deem it hereditary.

5. The B. Lepræ increase rapidly and ultimately kill by number; living on the tissues, blood and fluids, in which they generate ptomaines or poisons. The biological development of the leprous parasite has not yet been worked out, and is doubtless considerably slower than with some other forms. But it may be

illustrated by the bacilli of two other more rapid diseases, namely, typhoid and cholera. Thus if only one typhoid germ is at first received, the propagation and ultimate dangerous effects of its progeny may be followed up thus. Say one germ breeds four others by fission in the 24 hours, the increase is by compound proportion: so that the one germ of the first day has increased till on the 14th day, when typhoid is at its height, the number is over 67 millions. Again, in Cholera Asiatica, still more rapid than typhoid, and often fatal in six hours; supposing 20 germs are imbibed with one draught of water, and each of these makes four in six hours, we have at the beginning of the first day 20 germs, and at the end of the third day over 335 millions, all living in and on and poisoning the human blood and body: which, strong as it is and large, often ultimately succumbs to the pigmy parasites.

6. The mode and the rapidity of extension of leprosy is practically illustrated by its steady and more or less rapid increase, according to the sanitary, social, and personal circumstances of the people where it has located. Thus it first appeared and spread in Surinam after the importation of negroes. Forty years ago it was unknown in the Sandwich Islands, till the immigration of Chinese began; the first leper being discovered 20 miles from Honolulu in 1853. Now, one in every 15, and sometimes one-tenth of the entire inhabitants, are leprous. Honolulu, once free, developed 250 cases. Till ultimately they were compelled to isolate lepers in Molokai Island. So, too, in Mexico, Venezuela, and Trinidad; and to a less extent in the United States, it became prevalent owing to free intercourse between negroes and whites. But far less in Canada, where this contaminating negro influence was minimized. Leprosy is steadily increasing in the United States, because occasionally imported through San Francisco by the Chinese from Eastern Asia. In Australia it is also increasing, as well as in Cape Colony and Spain. Although the contagiousness of leprosy is still disputed by some, notwithstanding these facts, the mass of evidence seems to favour the idea with the majority of medical minds: and also that the disease, in all of its forms, is surely, though only very slowly and not strongly, contagious or infectious. Also of very slow incubation and development when in the blood or tissues;

and is probably the least contagious of all the known contagious diseases. The period of its incubation is indeed extraordinarily long; and the germ of the disease has even remained dormant for nearly 40 years. In these respects it resembles some other microbic diseases, notably tuberculosis and phthisis: but is very unlike others, such as the Exanthemata. Hence why leprosy is not easily or quickly received, caught, propagated and spread: and is contagious only in a minor degree. But its relative contagiousness is difficult to define with mathematical precision. In India, of persons under the same roof living ultimately with and in daily intercourse with lepers, only about an average of 5 per cent. afterwards became leprous. Again, when 79 lepers and 250 healthy people ate and drank for some time out of the same vessels, 7 per cent. of the latter became leprous. The case of a man is also recorded 30 years old, born and brought up of leprous parents, in a leper hospital, who married a leprous woman and yet never contracted the disease. This is doubtless an instance of extreme resisting corporeal power or non-susceptibility.

7. Leprosy is a disease which has no respect of persons; but may attack any individual, however excellent his sanitary surroundings, provided he comes into more or less close contact with a leprous person or community, and is himself a predisposed subject. In British India leprosy attacks Europeans and Eurasians as well as natives; though commonest among the latter. Nor does it favour rich or poor, young or old, although mainly seen in the adult.

8. Certain external factors no doubt indirectly influence the susceptibility to leprosy, and predispose to the inception, location, development, and spread of the leper germ and the incidence and onset of leprosy. It is very wise and indeed necessary to study these; because if this acquired predisposition were, by any means available, removed in a community or kept from developing, leprosy would cease to exist.

   a Climate, weather, and conditions of the air, water and soil that are the temporary home of the leprous microbe in its early, resting, or quiescent stage. This study corresponds to and is a part of the still unexplained aerial conditions, well-known either to favour or oppose the development and spread of all or most of the different contagious diseases

or "blights" that afflict humanity as well as those which favour or retard plant, fruit and flower blights or diseases of the vegetable world. The tendency to leprosy is relatively greater in humid climates and damp localities than in the reverse conditions.

b Sanitarily inferior localities and unhygienic environments, as best indicated by a low health rate and a high mortality, increase the risk of leprous infection: as occurs in most diseases: and is doubtless due to diminished corporeal resistance, generated by the indifferent or poor hygiene; the chief factors in this being:—

1. A bad, moist or variable and unhealthy climate.

2. The worse the social conditions the greater the danger of infection. Poverty, with its usual accompaniments, scanty, inferior, decomposing, or unvarying diet, overcrowding, impure air, uncleanliness of person, clothing, houses, communities, bad drainage, impure water, &c. That poverty and its insanitary environment has much to do with the development and spread of leprosy, is shewn by the Buddhists and Nats of India, amongst whom leprosy is found, their social and personal condition being low and often deplorable, and the proportion of lepers is 1·05 per 10,000; whereas among the wealthy or rich castes of India, it is less than 1 per 10,000.

3. Lack of cleanliness, personal, household, and municipal, and a laxity in the strict observance of sanitary laws generally, so as to cause deteriorated health.

The opposite sanitary factors, namely good climate, abundance of good food, cleanliness, &c., of course have the opposite or diminishing preventive effect. Cleanliness is one of the best safeguards against infection and the rapid spread of the disease, in an infected community, by warding off the bacteria from the individual; so that when one so guarded enters a leper locality, house, or community, the bacilli would be inert on his body in which no predisposition exists, and would

remain so till the latter is induced and a satisfactory soil for its reception formed.

c Leper contamination. The incidence of leprosy is favoured by residence in or near leper-infected persons or in a leper population, *i.e.*, in a germ-laden and therefore infectious or contagious atmosphere.

9. There are also certain internal or corporeal influences that no doubt favour the susceptibility to leprosy: thus:—

a An acquired predisposition, arising from diminished health of the tissues or blood, owing to prolonged exposure to insanitary influences.

b Hereditary predisposition. This is not constant, and is therefore difficult to prove from actual statistics, and is still disputed. But from analogy with cancer, syphilis, tuberculosis, gout, rheumatism, &c., we may believe that at least the fully developed disease impregnates, is born with and forms an integral part of the new condition in which the leprous tendency or predisposition lies dormant till it becomes actively developed by subjection to further unhygienic influences, plus the final incident, infection or contagion. In this way leprosy may run into and cling to families. Although it must be added, it does not often do so. It must be evident, however, that heredity does not transmit the full-grown but yet microscopic Bac. Lepræ, or even its still more minute germ to the offspring of a leper. But it may clearly transmit the bodily weakness and the tendency to the inception of the bacillus; though not to so great an extent as with some bacillary diseases; *e.g.*, syphilis, tuberculosis, cancer. Thus Hansen tells us that of 160 lepers who emigrated to Wisconsin, Iowa, and Minnesota, in the United States, 13 or a few more are alive and all the rest dead; and that of their descendants, sons, daughters, grandchildren, and great grandchildren, not a single one has become leprous.

10. Negative factors also play a part. The effect of certain other influences, usually popularly and even sometimes professionally believed to have an influence

in directly or indirectly producing leprosy is really nil. Those factors which do not influence its development and spread materially if at all are:—

a The geological and physical features of a country. Leprosy attacks all parts impartially, other things being equal; and is not more prevalent on the sea coast, along rivers, or in valleys, than elsewhere.

b Diet. A fish diet does not perceptibly cause or predispose to leprosy. In 47 leper asylums 23 per cent. of well marked lepers had never tasted fish; and a very large number only used it now and then. So also abstinence from animal food and confinement to a purely vegetarian diet does not prevent leprosy, as shewn by the Kahiparthis of India. Leprosy has been said to have been caught from swine.

c Race or caste. All seem equally subject to leprosy when the health factors are equally unfavourable; or free if these are equally favourable.

d Climate. Like personal and national habits, food, &c., this is only of secondary importance in producing leprosy.

11. A twofold combination of circumstances is thus indispensably necessary for the development of leprosy; viz., *first*, a predisposed body, and under-par health from heredity or insanitary conditions, or both: and *second*, the inception into some part of this of at least one Bac. Lepræ. So per contra the contagion or infection of leprosy may be counteracted by the opposite combination of circumstances, viz., sanitary superiority and healthiness of frame. Develop these, and leprosy would cease in a community or country.

12. As the bacilli are thrown out of the infected body by many different channels, each variety in its own special way: each leper may be regarded as a new manufactory of the disease, and a fresh centre for its diffusion, by contaminating the surrounding air, water, soil, food, drink, clothing, of those with whom these come in contact. So, each leprous family, village, town, or district is also a new source of danger and adds its quota either of the Contagium Lepræ (dormans or vivum) to space.

13. As the intrusion of at least one fertile Bac. Lepræ, which must have had its origin in a previous leprous

subject, is a sine qua non of the disease: leprosy can never be said to have ever originated "de novo"; that is by the now exploded mode of "spontaneous generation" in a deteriorated human body, which has been rendered morbifically inclined by the single or combined effects of insanitary influences. So every fresh case may act as a fresh focus, and beget many more. The contagiousness or infectiousness of any given case of leprosy is in some degree measured by the amount of ulceration; doubtless by the latter setting free the bacilli in the discharge. It is said to be inoculable only in the ulceration stage. Those lepers are therefore most dangerous whose ulcers teem with the bacillary parasite. And especial care should be taken in the isolation of ulcerated lepers; and in the disinfection of their sores. In localities in which lepers are at large, with the disease in an active state and having open sores, there seems to be an increased tendency to fresh cases among the general population. On the other hand inoculation with blood and pus from a tuberculous leper has failed to induce the disease. Though more recently inoculation has been performed successfully in the Sandwich Islands. These latter facts seem to imply that the disease is more easily and often caught by the infective (stomach or lungs) than by the contagious (skin) method.

14. If let alone leprosy spreads in a community, but if isolated it tends to die out, and ultimately does so, and that from two causes, namely:—

    a The disease diminishes the procreative powers and fecundity of its victims.

    b It increases the mortality among the leper offspring.

    But clearly the effect of this and of an improved hygiene should not alone be trusted to eradicate the disease. More stringent measures are necessary, namely, the following: The International Conference on Leprosy at Berlin, in 1897, concluded that isolation makes leprosy diminish; while the reverse makes it increase. Therefore the inference and the advisable and indeed absolutely necessary practice necessary for its extirpation is obvious.

15. A reasonable and justifiable, firm yet humane isolation and segregation of lepers is desirable. Not the harsh variety of the dark ages that deemed lepers and lunatics criminal: or the unnecessary mystic forty days'

quarantine: but the variable yet more appropriate length ordained by the Mosaic "law of the leper." But sometimes, as where foci form or it is epidemic, or the disease tends to spread, it should be compulsory. To promote this effectually it should always be obligatory. Notification and control of isolation according to the social status of the people, under medical and administrative power, is also necessary to take special measures in special cases. The fact that lepers regain the power of work in special isolation houses proves the benefit of this. In Norway isolation is compulsory; in Russia voluntary. The success of the Norwegian segregation tells strongly in its favour. By judicious isolation of the living, separate burial of the dead or their cremation, the fresh propagation of the Bac. Lepræ would ultimately, and that soon, be eradicated from mankind, and cease to exist. In Norway, where the disease is carefully looked after and recognised as a public danger; legislation on these lines, perhaps not altogether or purely accidental or purely medical, but Bible-derived, has been very successful in diminishing leprosy. Thus, since 1867 the number of lepers has diminished from 2,000 to less than 700 cases, mainly by segregation.

16. Nor should isolation alone be trusted to; even when combined with non-intermarriage. To these the best hygiene and highest civilization should be superadded to effect the speediest and most complete result of what is aimed at, namely, the stamping out or complete eradication of the disease. Elsewhere will be found a contrast of the ancient and modern treatment for curing, preventing, and eradicating leprosy.
17. Therapeutic remedies are far less efficacious against the disease than palliative. But the best of all are hygienic and preventative.
18. Leprosy is best met by the latter method; because cure of this disease, if it ever occurs, is very slow and uncertain; if not impossible by any means yet known.
19. Man is the only animal in which the Bacillus Lepræ can find a nidus, and develop the disease: nor can it be communicated from man to the lower animals.

Till within the last quarter of a century leprosy was popularly believed to be an almost extinct, dying, or dead disease. During this period, however, it has undergone recrudescence, and has re-appeared in different localities in such vigour as to be alarming; a misfortune, however, which is fast dispelling our lack of knowledge regarding this most objectionable ail-

ment. But in Britain and in other civilized communities where it is still absent, there still remains no inconsiderable popular ignorance that has led to several other misconceptions that ought to be combated. The chief of these are:—

1. That the term is not a real disease but only a figurative Biblical name for sin and its results.
2. That it is an old-time ailment; but now extinct.
3. That the modern form is quite another form from the Biblical.
4. That leprosy, ancient and modern, were and are not infectious and contagious.

These four grave mistakes are perhaps best met by a brief history of the disease, modern, mediæval, and ancient. This is perhaps best done by tracing it from the present time backward. At the present day leprosy, though practically unknown in Great Britain, is extensively distributed, and found in every one of the great divisions of the world. Thus:—

1. In Europe it is met with in Norway, Sweden, Lapland, Finland, France, Brittany, Pyrenees, Turkey, Greece, Portugal, Spain.
2. In Asia it is found in Arabia, Syria (Jerusalem), Asia Minor, Japan. In Ceylon there are 124,924 lepers. In Hindostan, with its variously estimated population, say of 180 millions to 310 millions, the lepers in the year 1866 are said to number from 100,000 to 120,000. Some aver they amount to nearly 250,000 and others to 500,000. This gives a proportion of lepers at $5\frac{3}{4}$ per cent. For the segregation of these there are about 14 centres or stations. These are distributed proportionately thus. In Madras 4·4 per 10,000: in Bombay 8·5 per 10,000: and in Bengal 5·2 per 10,000. This proportion ranges from 2·0 in districts to 10·5 in Madras City.
3. In Africa it is found in Egypt, Abyssinia, Darfur, Mauritius, Seychelle Islands, Madagascar, West Coast, Cape of Good Hope.
4. In America it is found in the United States, *e.g.*, in Louisiana, where it was lately epidemic: California, Canada, Cape Breton, where it was also lately epidemic; Greenland, Iceland, the West India Islands; in Surinam, South America.
5. In Polynesia it is met with in the Sandwich Islands and Australia. These facts shew that leprosy is not an extinct but a widespread disease at the present day: and never entirely absent from some parts of the world. Almost all climates may claim it from the Equator to the Poles. In some, however, it is more

severe and frequent, for example in miasmatic localities; doubtless because these are microbe favouring. In some places it is very prevalent, as in the Sandwich Islands; in others it is more rare. It is said to be on the increase in South Africa, the West Indies, and some say India. Whereas it is decreasing in Norway; chiefly from judicious isolation. In Syria, as in former ages and Mosaic times, it still prevails. Thus leprosy is no more a vanquished, stamped out, and extinct disease than is small-pox, cholera, or the bubonic plague, once supposed to have died out, or nearly so.

Leprosy is not a purely modern and new disease; but a very old one, with a real past and a well authenticated and interesting history. In fact it is the earliest of known diseases; as notorious in its earliest days as it is now for its loathsomeness and prevalence; sparing neither rank nor sex. The practical extinction of leprosy in Britain and the long unfamiliarity of the public with the disease accounts for the popular ignorance on the entire subject. It is very much with this as with small-pox. Formerly much dreaded, the latter is now very unfamiliar to the people generally, and hence is greatly minimised and even despised, because of ignorance of its virulence, loathsomeness and danger. But it has not always been so. Leprosy was once very prevalent and much feared in Britain, which was scourged with it for 13 centuries; though now a rare sight, and when seen usually imported. How it left is to a certain extent a puzzle. Our early sanitary efforts were imperfectly chronicled. But no doubt we have an improved drainage, dieting, and cleanliness chiefly to thank. Just as in modern days we have become accustomed to the very mild and modified forms of small-pox, and are apt to despise the frightful, deadly, unmodified disease, once so frequent in these islands. So with leprosy. What was once so common and dreaded is now little else than a seldom-uttered, half-forgotten name; that would perchance have been quite forgotten but for the Holy Scriptures, with their typical application of the name and legislation for the disease in olden times.

Leprosy, when so common in Britain, was called the "great disease" or "mickle ail," terms that indicate its dreadful nature then. Popular ignorance led to cruelty: for lepers were then spurned more than in Mosaic times and were involuntarily isolated. Nay, a Norman law went so far as to make a leper a "guilty" person. Lepers were everywhere shunned, banished from society, and disinherited of their property. In Scotland also leprosy was not uncommon in the 14th Century. It chiefly affected the lower classes, but sometimes the higher. King

Robert the Bruce of Scotland died of it in 1329. Liberton (lepers' town), a village near Edinburgh, derives its name from having been an asylum for lepers. There were once a large number of leper houses in Britain. The frequency and universality of leprosy in England in 1307 may be gleaned from the will of Thomas Britton, Bishop of Exeter, proved in September 21, 1307. Of the 200 legacies left by him 39 were for the benefit of lepers, lodged at the following places in his diocese: "Exeter, Okehampton, Tavistock, Sutton, Plymptone, Cleve, Modburn, Chadclyntone, Dexterwith, Tottene, Honiton, Teignmouth, Nijweton, Feners, Toppesham, Deveneburi Barnum, Pylton, Lanceton, Tremeton, Setus, Germanus, Lis Kyret, Dyn-mur, Bodmin, Lanford, Tory, Glas, Mousehole, Madern, S. Sancred, Redruth, S. Brioc, Oldestone, Medeschole (*Lancet* 1890). In 1224 the Franciscans, under St. Francis of Assisi, made that, the man-forsaken class, their special care; till, after a century, they had built over 100 hospitals—leper (or lazar) houses—for these outcasts. London rejoiced in six or eight leper hospitals. The best known of the English ones in modern times, by record, is the Leper House of Sherburne, under the Bishop of Durham; a sketch of the internal economy of which will illustrate all. Over each a Priest presided as head or superior. The inmates were well fed; had a loaf of bread and gallon of ale a day; meat thrice a week, fish, butter and cheese on the other three days; Salmon one day in Lent; clothing and shoes; and a sick chamber for the ailing. Great cleanliness was enforced. The blind terror and strong dread of contagion which prevailed among the healthy, led to the making of stringent, harsh, and even cruel laws for discovering and isolating lepers in these public lazar-houses, in which they were put with solemn public religious ceremonies. They were also forbidden to mingle with the multitude or to enter a church, market-place, mill, ale-house, or any public assembly. Ten severe and solemn commandments were also made for the lepers' observance. In some lands it was even deemed criminal to furnish them with the ordinary necessaries of life, even water and fire. So that then, as in Mosaic times, it was clearly the popular opinion in all countries that leprosy is infectious and contagious, and therefore that it was necessary to avoid and even isolate lepers. Popular opinion then, as in all subsequent and previous times, thus verified the old but yet ever new and decisive verdict of the Holy Scriptures and the Sinaitic law as to the truly and strongly infectious and contagious nature of leprosy. Modern microscopic research and the demonstration of the bacillary origin of the disease seem to add additional proof to settle this point.

Leprosy was not a purely British disease; but prevailed in

every country in Europe. France had lepers in large numbers; and, as in England, erected hospitals for them in the great towns and cities. Two of the "old masters," Holbein and Albert Durer, have depicted this disease. But on the Continent, where it was once so common, both in the East and West, it is now comparatively rare, in its most civilized and enlightened regions. For this we have also, as in Britain, to thank the improved hygienic conditions under which the people now live, especially the dieting and cleanliness. But leprosy is a still more ancient disease. In India and China it is known to have perpetuated itself for more than 2,000 years. Authentic secular and Bible history can both trace it back to the Christian Era: and we now turn to our special authority, the Holy Bible, for confirmation. Christ proved His Divinity by miraculously curing lepers in Judea, as narrated in the four Gospels (Mat. viii. 3; Mark i. 42; Luke v. 13; v. 12). In the house of Simon the Leper Christ was anointed by the woman (Mat. xxvi. 6; Mark xiv. 3). Further back still, about B.C. 600 the Persians isolated and expelled all lepers from their own territory. The disease was first written about by Aristotle (born B.C. 384). Though no doubt it was the invasion of Darius and Xerxes, and perhaps their banishment from Persia that influenced the westward propagation of the disease and its introduction into Europe.

In the Old Testament leprosy is the first mentioned and oftenest spoken of disease: and that not only as the exceedingly appropriate ailment selected by Jehovah to symbolize sin: but as an actual and highly objectionable affection. The very word at once conjures up some of the most interesting and pathetic biographical incidents in the entire sacred narrative. Here it is regarded as a judgment from the hand of God; and it undoubtedly was frequently sent as such. Prominent among these instances are: King Azariah or Uzziah (B.C. 810), son of King Amaziah, who was stricken with this disease first in his forehead, a noticeable spot, and carried it for life, compelling him to dwell in a "several" house (2 Kings xv. 5) and necessitating his exclusion from the family sepulchre (2 Chron. xxvi. 28; 2 Kings xiii. 22). His disease was punitive, for permitting national idolatry (2 Kings xv. 4) and for himself burning incense (2 Chron. xxvi. 19) while not a Priest, and thus desecrating God's altar. Again, in the days of Jehoram King of Israel (B.C. 907), his co-temporary, Jehoshaphat, King of Judea, and Elijah the Prophet, occurred the seige and famine in Samaria when beseiged by Benhadad, King of Syria, and the curious incident of the four lepers of Samaria (2 Kings vii. 8). Moreover, from the beloved physician Luke we also glean that about this period "the times of Eliseus the Prophet many lepers were in Israel and none of them were cleansed saved Naaman,

the Syrian" (Luke iv. 27). From this we may infer that among outside nations not so well cared for by Jehovah as were the Hebrews even then, leprosy was exceedingly prevalent. Another interesting story was that of Naaman, captain of the Syrian host, a great man, honourable and valorous, but proud, though a leper, who was miraculously cured on Elisha's advice by taking seven baths in the Jordan (2 Kings v.). So is its sequel, the narrative of Elijah's servant Gehazi, to whom, for lying and cupidity Naaman's leprosy was transferred (2 Kings v.). Still earlier, in King David's days (B.C. 1055) his curse on Joab is memorable for covertly killing Abner, who had slain his brother Asahel; "let there not fail from the house of Joab one that hath an issue or that is a leper," &c. (2 Sam. iii. 12). Earlier still (about 1500-1600 B.C.), during the Hebrew Wanderings, we read of Miriam's leprosy, a miraculous, instantaneous attack and cure which lasted seven days and incurred banishment from the camp. This was punitive by Jehovah for jealousy and evil speaking about her brother Moses at Nazaroth (Numb. xii. 1-15).

Moses himself was another Biblical notable who was slightly and temporarily affected in his hand, which became "leprous as snow" and was as quickly cured; to hearten him by proving Jehovah's power (Ex. iv. 6-7) over humanity and all that concerned them, as a prelude to the Exodus. It was during the Wanderings, and especially during the first two years, that Jehovah delivered the Sinaitic law given in full detail by Moses, in Exodus, Leviticus, Numbers, and Deuteronomy. One of the sub-codes of this law was, the hygiene of disease; and of this sub-code again, one of the most prominent and stringent laws was the "law of the leper" (Lev. xiii. 14). From the prominence of this in the Sinaitic code we are apt to conclude that leprosy prevailed among the Hebrews to a very great extent. Yet during the whole 40 years of the Wanderings we only read of one case, Miriam's mild and curable one. And but for the incidence of the Sinaitic law at this time the name might never have been mentioned at all. Various facts point to the idea that leprosy was almost unknown among the Hebrews at this period and during the whole of the Wanderings, though very common perhaps among outsiders. At the beginning of this period we read "there was not one feeble person among the tribes" (Ps. cv. 37). Therefore there could not have been then a single case of that most debilitating disease, leprosy, among the entire two millions of Hebrews and the "mixed multitude" who accompanied them. Nor could there have been a germ of truth in the assertion of Manothes that the Egyptians drove the Israelites out partly because they were affected with leprosy. The real truth is, the God who had so

rapidly increased them had also miraculously preserved their health and kept them from the prevalent diseases of Egypt (Ex. xv. 26): and did this even during the initial hardships and privations of the first year of their Desert life, including lack of water, food, vegetables, &c. Some have inferred that leprosy must have prevailed very extensively among the Hebrews during the Wanderings, otherwise the divulgence of the law of the leper would not have been required. This is clearly as erroneous as it would be to suppose that murder and theft and other vices prevailed extensively among them because laws were made to prevent these and given prominence in the Decalogue. The Desert was a grave for a whole generation of Hebrews, and doubtless many more. But there is not the slightest evidence that these succumbed to leprosy in any form, but to more rapid and acute forms of "plague," &c. (Ex. xxxii. 35; Numb. xi. 33; Numb. xvi. 46; Numb. xxv. 9). Plague in the Holy Scriptures is a generic term for many troubles besides disease; and for many different ailments. Thus for the plague of flies, frogs, lice, murrain, &c. (Ex. vii. to xii.) before the Exodus; and the different disease plagues before and during the Wanderings (Ex. xxxii. 35; Gen. xii. 17; Numb. xi. 33; Numb. xvi. 46). Nor, having legislated so wisely and strongly to prevent leprosy, does it seem likely that Jehovah would either bring or permit it to come into the Hebrew camp. That law was made largely, indeed mainly, for the future of the Hebrew race in Palestine, and subsequently when scattered over the world. Not only leprosy, but other skin diseases were evidently likely to be more prevalent there than during the Wanderings when the Hebrews were more amenable to God's laws, better acquainted with them, and less forgetful of Him than later on. It was partly to keep them from leprosy and other ailments, as well as to preserve them from alien vices that they were forbidden in the Desert to mix with other nations. And it was partly to instil a dread of this disease, and to teach how to avoid it, that the law of the leper was revealed and also so strictly enforced: an ulterior object being to teach its tenets in view of the greater prevalence of the disease later on in Judea; when national sin had lessened the Jehovistic love for and care of them.

During the Egyptian bondage, although leprosy was very common among the Egyptians and other nations; the Hebrews, by the same Divine agency, were doubtless kept free from this great scourge, notwithstanding the studied degradations, privations, dirty work and slavery under a burning Egyptian sun, combined with other highly unsanitary surroundings, such as fatigue, deficient food, &c., which must have had a great tendency to generate this by inducing impaired health, the first

factor essential for the incidence of the germ then everywhere ready to settle. At the same time, the Divine "law of the leper" revealed during the Wanderings was a practical medical law conceived and formulated for warding off a real, frightful, and not for an imaginary or typical disease. During the Wanderings, and indeed all through the Bible story, leprosy, Jehovah's own selection, is used as typical of sin; and no better could have been chosen for its loathsomeness, intractibility and deadly nature. Even the Priestly seed of Aaron was deemed leprous (Lev. xxii. 4) to shew that none are exempt.

The date and authorship of Job are both disputed. Some think this book was written during the era of Abraham. Others that Moses wrote it during the second forty years of his life, in Midian; or during the Wanderings. But there we find the progress and effects of leprosy described so as to shew that it was a well-known and prevalent disease in Job's days (Job ii. 7; vi. 12; vi. 2; vii. 3-5; xix. 14-21). In fact this disease was known and its special name had its origin in the very earliest times. Most probably it was the first of all recognized and prevalent diseases. It has been said to have been carried to Egypt from the Soudan B.C. 1500; probably 4,200 B.C.: and became very prevalent there: where the muddy and perhaps miasmatic Nile doubtless contributed to its location and spread among all classes, rich and poor, peasants and princes; as in later Bible times. The adjacent hot, dry climates of the cradle of the earlier races of Adamic man; namely South-western Asia and North-eastern Africa, especially the warm Syrian and the hot rainless climates of Egypt, were not only such as were sure to induce leprosy, as in Benhadad; but also a wide variety of skin diseases, for which the East was and still is noted.

These facts ought not only to fully dispel the prevalent misconceptions regarding leprosy, already alluded to; but also to increase our interest in what the Holy Scriptures say regarding it and the rules they codify for its diminution and extinction.

Biblical Legislation Regarding Leprosy

Leprosy is the chief disease legislated for, and that hygienically, in humanity's immortal and immaculate handbook, the Divine Bible: especially in its oldest part, the Pentateuch. But all through the book no ailment is more often alluded to either typically or truly. What is the nature and value of this Biblical lore; and its applicability to present day conditions and the modern disease?

In Mosaic and pre-Mosaic days leprosy was evidently an important, widespread, imperial and greatly dreaded disease;

regarded as a type of sin and moral pollution; sometimes sent as a special judgment and punishment for sin as in Gehazi's case, and often sent and cured by God as in the case of Naaman and Moses. Hence why the law ordained that the clothes of lepers in whom was the plague should be rent as a token of humiliation and grief (Lev. xiii. 45). Although often used to denote sin or moral and spiritual depravity and pollution (Gen. xii. 17; Numb. xiv. 37), leprosy was not a typical or imaginary disease only but a real one. Neither was the "law of the leper" laid down not by human intelligence but by Jehovah, for its treatment and extinction, purely figurative, but real, practical and medical.

Sometimes the Holy Bible calls the disease a "stroke" or wound of the Lord or the "plague," thus deeming it a Divine infliction (Numb. xii. 10; 2 Kings v. 27; 2 Chron. xxvi. 20). It is the only contagious disease for which the Divinity prescribes and legislates hygienically: and for the conduct and eradication of which special directions are given; no doubt intentionally and suggestively as a clue to the treatment of infectious and contagious diseases generally. Leprosy is also the only disease selected by the All-wise for illustrative allegorcial purposes and to symbolize soul disease or sin in all its varieties, hideousness, stubbornness, and ineradicability, except by Divine intervention, as with Miriam, Moses and Naaman. From many points of view the study of leprosy is therefore important for all races. Christian medical men may perhaps regard these ancient leper laws of the Bible with renewed interest on restudy: especially as leprosy is still a very prevalent and serious modern ailment that requires watching, opposing, and stamping out; and to which much interest has lately been attached on account of its recrudescence and threatened danger in different parts of the world.

Although the intrinsic nature of Bible leprosy is not divulged; and the Scripture term probably includes several different ailments; and not true leprosy only, but other pseudo-leprous or leprous-looking ailments; one fact is certain, that the Biblical description includes the true disease as well as its allies; the distinctive marks of which are minutely described (Lev. xiii.).

Little can be gleaned from the Bible regarding the essential pathological nature of Bible leprosy. Its true origin is neither given nor suggested. The Holy Bible is not an elaborate medical treatise; and so does not enter into minute professional details. But we glean that it was apparently a skin disease or one that involved the skin; very contagious and not only transmissable from person to person but to these through garments, wood and other things: very much as are other diseases of the

infectious and contagious class, including the modern form of the disease itself. Then, much as at the present day, leprosy was deemed, if not hereditary, that at least it induced a tendency to its encroachments: a disease so foul as to excite loathing disgust and horror; insidious and subtle spreading secretly; often latent for years till the acme is reached and it breaks out openly; pervading the whole body and every organ and tissue; flesh, joints, bones become affected, disfigured, deformed and loathsome. These daily increase, and though the person may live on for years, life is misery and death a welcome release.

The term leprosy in the Holy Scriptures is clearly a generic word given to include a class of diseases of the skin and body, not clearly differentiated but very prevalent among the Egyptians and other nations of early Bible days and the Mosaic period. From this fact and because Jehovah divulged a law for the prevention, limitation and ultimate extinction of this disease, it has been supposed that the Hebrews also were afflicted with this curse beyond all modern example. This idea is clearly a mistake. The "law of the leper" was given not to get rid of leprosy prevailing among the tribes but rather to prevent that which threatened them from outside nations: and for the same reason partly Jehovah backed it by a command that they should have no intercourse with them, social, commercial, political or connubial. God "protected" the Israelites not only by His special providential health-care; but especially by promulgating and enforcing His definite, organized and efficacious laws of health and those of disease, which included the "law of the leper." The latter pointed out the main cause and danger of leprosy; and instilled a new idea to the Hebrew Priest-physicians and laity; that of infection and contagion. In the country they had just left they had become familiar with the disease itself. Moses the Priest of Heliopolis and the student of medicine would no doubt know it well: and would therefore, as the most intellectually enlightened of the entire Hebrew nation, receive the epoch-making law of the leper with the avidity of a true savant and devout investigator of God's nature, attributes, works, and laws.

The leprosy of those Mosaic days, like that of the present time, was clearly not only of more than one kind, but included not alone the real types but also several diseases which were leprous-like, but yet not the true ailment. Nay, more, it included varieties utterly unintelligible to us, namely leprosy of garments and houses. This is not the place to attempt to solve these questions of identity and pathology. Our present and more important object is mainly to point out how the ancient Israelites and their great mentor, Moses, acting under Divine instruction, treated true, that is infectious and contagious

leprosy, not the spurious varieties; shew their hygienic methods for its suppression; and draw practical lessons therefrom, suggestive and otherwise, for the treatment of the modern disease, so widespread and alarming.

The varieties of disease, namely leprosy, in the Pentateuch have been differently classed. Thus some say the Holy Scriptures mention three varieties of body leprosy or berat (Lev. xiii.): thus—

1. Berat Lebena or bright white berat.
2. Berat Cecha or dusky berat, spreading in the skin.
3. Berat Boak, a form which did not render the person unclean.

Of these, only the first and second were what Moses called Tsorat, *i.e.*, venemous, malignant, and contagious. And one is at first undistinguishable from a harmless eruption. The third variety doubtless included the morphologically allied skin eruptions that were spurious or false leprosies. Hence the need for the repeated early and careful inspection of all sorts, so carefully inculcated in the Pentateuch. The Mosaic description of the different forms and diagnosis of leprosy appear very vague to us. But this occurs with many ancient secular descriptions of the diseases of former days. It is difficult to understand the reason of this uncertainty in a heaven-inspired volume: and the fact is only to be explained in one of two ways; *first*, that the doubt arises from our ignorance or misconception of their definitions; or *second*, through indefinite translation. Perhaps medical decipherment of the chapter in the Hebrew may make the subject clearer. But of this we may be certain; it was perfectly intelligible to the High Priest, Priests, and Levites of that day; or it would not have a place in Holy Writ, or come as this did, direct from Jehovah to Moses in the Holy of Holies. Skin diseases, so common now as then in the East, formed one of the Egyptian medical specialities. And Moses must have studied this at On. Doubtless the differentiation of skin diseases was not very accurate or sound, and perchance loosely worded; and the tendency of that day inclined to useless sub-division, classification and promotion of mere varieties into new species. Mistakes were doubtless made then as now in diagnosis; especially with incipient and half-developed cases. If the translation is correct; it may be that it is so indefinite; that our modern minds fail to decipher its meaning. Or perchance the textual descriptions are purposely left vague because meant to include some or many, if not all of the skin diseases then and there prevalent, especially the more loathsome ones and those which much resembled true leprosy, *e.g.*, psoriasis, lepra, eczema, &c.: diseases which, though more curable, had also a claim, although only a minor one, to be called unclean, than the far more serious and

incurable ailment, true leprosy, for which the "law of the leper" was chiefly made.

Others read the Mosaic leprosies thus:—

1. White Leprosy (L. Morphœa Alba Mosaica) (Ex. iv. 6; Numb. xii. 10; Lev. xiii., &c.). This is the form which affected Moses, Miriam, Naaman, and Gehazi. It covered either the entire surface of the body or a large part of it. Singularly enough this is regarded as "clean" (Lev. xiii. 12, 13, 16, 17).
2. Tuberculous Leprosy (L. Tuberculosa, Nodosa, Mutilans) (Deut. xxviii. 27).

Of these two forms the second kind is now the only variety met with in Palestine; where there are only about 600 cases in all the towns and villages. But, though apparently few, even this percentage is comparatively high for its sparse modern population. In Jerusalem the modern lepers live in common in a domicile assigned them by the municipality: to which, on the appearance of symptoms of leprosy the person is at once sent from the village and isolated.

Some Rablinical commentators of a later age, *e.g.*, Surenhusius enumerate 16, 36, or even 72 different species of leprosy. But this is only by distinguishing every phase and variety of the disease, and including many ailments resembling but not yet true leprosy.

In the midst of the other multiform Sinaitic laws of the Pentateuch, spiritual, moral, social, civil, criminal, and hygienic, we find a strongly worded and imperative law for leprosy. Indeed the minute Jehovistic code for practically illustrating the best mode of disease prevention, that devised by the Divinity, is based on and framed chiefly for this very disease. And its value and importance in Jehovah's eyes may be gleaned from His command, "Take heed in the plague of leprosy that thou observe diligently and do according to all that the Priests, the Levites, shall teach you, as I commanded them so ye shall observe and do" (Deut. xxiv. 8). Neglect of this was punitive (Lev. xxvi. 14-46). Indeed the "law of the leper" formed an important part of the Jehovistic plan for teaching Man how to guide himself aright; this law for the body in disease to supplement others for it in health; and these again to supplement others for Man's other entities, his mind, morals, social life and soul; nothing being left out in this complex, complete, and comprehensive scheme for our human welfare. Nor must the Jehovistic laws for the body be overlooked because overshadowed by the still more important laws for our higher nature.

It is unmistakeably difficult to decipher from the Mosaic descriptions what were the varieties of leprosy meant; or what

were the allied or leprous-like ailments he may include for differentiation. Just as it is often difficult to recognise certain ailments from their descriptions recorded by ancient physicians. For though his distinctive marks are doubtless perfectly correct and unassailable, Moses does not seem to have been so deeply versed and specially indoctrinated in clinical medicine as he was in hygiene, in which his views amounted to a distinct Heaven-bestowed revelation. But several things are certain: thus—

1st. These descriptions are correct, because they hold a definite place in Holy Writ; are therefore Heaven-supervised; and if we cannot or do not read them aright, this fact is due either to our lack of professional discernment or to faulty translation: as has also happened with the Bible astronomy, geology, &c., &c.

2nd. They were understood by and suited for the Hebrew Priest-physicians, who had to read and act on them.

3rd. They only include the beginnings of disease, the incipient half-developed stage of true leprosy or some other threatened ailment; and not the advanced or fully developed stages; the detection of which required no special medical or priestly skill, and could be accomplished, even by the patient or lay friends, who would not fail to recognise the skin discolourations, swellings of joints, &c., peculiar to true leprosy.

4th. The descriptions only included the cutaneous and the anæsthetic forms; and not the articular or mixed forms: as no description of joint swellings, distortions or general disfigurements have been given.

Would not a new medically supervised translation throw fresh light on the Mosaic description of leprosy and allied diseases found in Lev. xiii.? Meanwhile the different leprous, pseudo-leprous, or doubtful diseases there described by Moses, may be classed under the following 16 heads:

1. Confirmed, deeply-rooted true leprosy was recognized thus: by swelling, a scab, a bright spot, white hair, both skin and flesh involved (Lev. xiii. 2-3). This incurred 1, permanent "uncleanness"; and 2, isolation.
2. Superficial, doubtful, or false leprosy: a bright, white spot; skin-deep; hair of place natural (Lev. xiii. 4-6); this incurred inspection and temporary (seven days) isolation.
3. Superficial, skin leprosy. A scab, much spreading (Lev. xiii. 7-8): which involved "uncleanness" and permanent isolation.
4. Old leprosy. A white rising in the skin; hair white; and raw (ulcerated) flesh (Lev. xiii. 9-12). This made

an individual "unclean" and involved permanent isolation.

5. White leprosy all over the skin (Lev. xiii. 12-13). This was evidently a harmless eruption, not true leprosy; probably some skin disease, such as eczema, psoriasis, or lepra. With this a person was deemed "clean" and involved no isolation.
6. Like the above, but with raw flesh; the person was "unclean" and permanently isolated (Lev. xiii. 14).
7. In this form, if it changes to 5, the person remained clean and was not isolated (Lev. xiii. 16-17). This was probably incipient eczema, psoriasis, or lepra: a harmless eruption with cracked or ulcerated flesh and not true leprosy.
8. Leprosy grafted on a boil (healed); now a white rising; or bright spot, white or reddish and lower than the skin; hair white (Lev. xiii. 18-20). This being the true disease the person was "unclean" and isolation permanent.
9. Leprosy grafted on a healed boil; not lower than the skin and dark; with no white hairs (Lev. xiii. 21-22). This being likewise the true disease the person was "unclean" and the isolation permanent.
10. As above; if the bright spot stays, it is a *burning boil* (Lev. xiii. 23). The person remained typically "clean"; but was temporarily isolated (seven days).
11. Leprosy grafted on a scald or burn or a scar of these. This shewed quick flesh; a white bright spot, reddish or white; the hair white; deeper than the skin (Lev. xiii. 24-25). This also being true leprosy involved "uncleanness" and permanent isolation.
12. As above; but with no white hair; place not lower than the skin; dark; and spreading (Lev. xiii. 26-27). After a primary isolation of seven days, doubtless for differentiation; this involved "uncleanness" and permanent isolation.
13. As above; with a permanent bright spot; dark; but not spreading; a rising or inflamed burning (Lev. xiii. 28). This was not leprosy; the person remained "clean" and was not isolated.
14. Leprosy of scalp or beard. This affection was below the skin; the hair of the place being yellow and thin (Lev. xiii. 29-31). This was "dry scall"; and involved temporary isolation of seven days or more; no doubt for outlook. If it stayed it involved uncleanness and also permanent isolation.
15. Darkish white freckled spots in the skin (Lev. xiii. 38-

39). The person remained "clean," no isolation being imposed.

16. Leprosy in a bald head; white, with a reddish sore (Lev. xiii. 40-42). This being true leprosy it involved "uncleanness" and permanent isolation.

This Mosaic classification would scarcely be definite enough for the present day: and was doubtless given to suit the medical knowledge of the period; full of divisions and sub-divisions in classification; familiar to Moses and his school at Heliopolis. And it doubtless includes different skin and other diseases besides true leprosy; such as eczema, psoriasis, lepra, in their different, early and advanced stages; the beginning of Elephantiasis as well as that of true leprosy; especially before they were sufficiently developed to be differentiated and accurately classed. But the list clearly includes the various forms and stages and localities of the true disease; both in its primary and advanced stages. Thus these 16 differentiating diagnoses of Moses in Lev. xiii. include:—

a Two of leprous and leprous-like or doubtful cases of leprosy in its initial stages; namely 3 and 14.

b Eight of true and advanced well-established leprosy; namely, 1, 4, 6, 8, 9, 11, 12 and 16.

c Six of suspicious cases, having a superficial resemblance or a real affinity to leprosy; namely, 2, 5, 7, 10, 13 and 15.

Thus in the descriptions given by Moses; true leprosy is the main disease mentioned and legislated for; because of all it is the most loathsome and most difficult to cure and prevent. Moreover, by legislating for this, the major ailment, the Holy Scriptures clearly points out inferentially how to deal with all other forms. This scriptural law is thus, like all others, many sided and far-reaching; and medical men may find some good practical hints by "searching the Scriptures" regarding it.

In ancient times, not only leprosy, which involved the skin, but also purely skin ailments, such as those described in Leviticus, 13th chapter, and about the year 1490 B.C., prevailed through Asia and Europe. Now both have almost disappeared from the latter, except Sweden and Norway. Most skin affections are very troublesome owing to pain, itching and unsightliness. Among the Hebrews of old, especially in Judea and after the Wanderings, they were probably very prevalent. Hippocrates, born B.C. 460, who wrote 1,100 years later than Moses (born 1571) enumerates three varieties of true leprosy. Moses does not name or differentiate the kinds of his day; and evidently did not favour minute sub-divisions of disease and multiple names such as now prevail.

For this dire disease the Biblical and Jehovistic "law of the

leper" of the Sinaitic or Mosaic code is both theoretical and practical: and will bear the strictest analysis and comparison in the light and by the methods of modern criticism. Thus if a man had in his skin a "swelling scab or bright spot" resembling leprosy he had to go or be brought to Aaron or one of his sons for decision as to the nature of the case, whether true leprosy or not. Their constant practice and extensive experience in deciding this question gave them an advantage which the ordinary Israelite did not possess. And doubtless the Priests had imparted to them both Mosaic and Divine instruction or inspiration; as with Bezaleel and Aholiab on mechanical subjects (Ex. xxxv. 30-35); and others (Ex. xviii. 26; Ex. iv. 15).

If the Priest diagnosed true leprosy he pronounced the person "unclean" (Lev. xiii. 1-3). The case being admittedly infectious it was shut up for *seven* days; or as the Syriac says, he "shall bind up the wound" (Lev. xiii. 5). At the end of this if the plague was "at a stay and not spread" he was shut up seven days more—total 14. If then the plague was not spread the Priest pronounced him clean medically; because "it is but a scab" and therefore non-infectious (Lev. xiii. 6). The patient had then only to wash his clothes to be clean ceremonially. But if after this cleansing the Priest found the scab spread much abroad in the skin and spreading in the skin, then the Priest pronounced him "unclean, for it is a leprosy"; and therefore infectious, requiring isolation. The motive for this in undecided cases was: 1st, to separate suspected ones early, and thus lessen the chance of infection among the clean; 2nd, to ensure early treatment, and prevent neglect of remedial measures: though of what these consisted we have no Biblical record; as if to impress the superior value of hygienics over therapeutics for this scourge. 3rd, to give the people generally the benefit of skilled advice and treatment; hygienic, therapeutic, dietic, and otherwise; and put them under the best conditions and surroundings to ensure the speediest recovery.

If the affection remained uncured and had spread and turned out to be true leprosy, and was therefore infectious (Lev. xiii. 7, 8, 9) it had to be brought again to the Priest, who was to pronounce him unclean; and thereby decide that permanent isolation was necessary.

Or if from the first it was evident that the plague of leprosy was in a person; and it was supposed to be an old leprosy (Lev. xiii. 9) he was to be taken to the Priest, who pronounced him unclean, and shut him up to prevent the infection of others. The chief distinguishing marks in all true leprosies were: a white rising in the skin, quick raw flesh in the rising and decolourizing of the hair, which turned white.

Leprosy of the skin, even if it covered the whole body from

head to foot, if it had turned white, the Priest had to "pronounce him clean that hath the plague" (Lev. xiii. 13); that is, his disease was non-infectious.

If on the other hand "raw flesh" was seen by the Priest in any part of the affected skin surface "the raw flesh is unclean, it is a leprosy" (Lev. xiii. 14-15) and therefore infectious. But if this raw flesh turn again (heal?) and the plague be changed to white, then the Priest had to pronounce him clean (Lev. xiii. 17); that is free from infection.

In cases where other diseases developed an existing but latent hereditary tendency to leprosy; for example a "boil" (Lev. xiii. 18); or a hot burning (burn or scald), not unfrequent origins of many different diseases; the second ailment being superadded to or rather grafted on and a sequel to the other; and a result of the weak condition induced by the first: the Priest had to decide whether the disease was true leprosy or merely the original disease, a burning boil (Lev. xiii. 23): or the scar of the burn and resulting inflammation or discolouration thereof (Lev. xiii. 28). In the former case he had to pronounce the disease leprosy or the plague, broken out of the boil of the burning; and pronounce the case unclean (Lev. xiii. 20-25).

Next to general leprosy comes the consideration of and rules for dealing with the local varieties of leprosy; especially in the head and face; doubtless often more distressing to those afflicted, because more evident and disfiguring though not perhaps so widespread as that of the body.

If a man or woman had a plague, leprosy, or dry scall on the head or beard, in sight deeper than the skin, and in it yellow thin hair, that is abnormally bleached or coloured hairs, and no naturally tinted ones (Lev. xiii. 29-30), then the Priest after examining, had to shut him up, that is isolate him for seven days. After this the Priest had again to examine; and if the scall had not spread, was no deeper than the skin, and had no yellow hairs; the patient had to be shaven over the scall, and again shut up for other seven days. If, at the expiry of this period the Priest found the scall had not spread and was only apparently skin deep, then the person was to be deemed clean, after washing his or her clothes. Again, if the scall was manifestly at a stay and retrogressive or healing, as shewn by the evidence of a "black hair grown up therein" (Lev. xiii. 37), that is a healthy-coloured hair, the scall had to be pronounced "healed" and the person "clean."

On the other hand, if the disease, after all this care and isolation was evidently progressive and had spread much in the skin after cleansing; then the Priest did not require to search

for yellow hair, but had to name the patient "unclean" (Lev. xiii. 36-37).

Certain conditions and appearances of the skin are distinctly specified to prevent their being mistaken for leprosy; and the consequent avoidance of its penalties. Thus a darkish-white bright "freckled spot" that groweth in the skin. If a man or woman had this they were not leprous but clean (Lev. xiii. 39).

A man whose hair had fallen off and was bald on the top of his head or forehead was "clean." That condition is natural to age or idiosyncrasy. But if a leprosy spring up in this baldness in the form of a white reddish sore, as the leprosy appeareth in the skin of his flesh, he is then to be deemed "utterly unclean; his plague is in his head" (Lev. xiii. 44).

The social treatment of lepers is also strictly laid down in the Pentateuch. Leprosy being then regarded as a Divine infliction and a symbol of sin and its effects, tokens of grief and humiliation were to be shewn by certain observances, by which the leper was at once recognised, avoided, and thus prevented from accidentally infecting others. Hence the leper was compelled to make his near presence known by:—

1st. Rending his clothes.
2nd. Baring his head.
3rd. Putting a cover on his upper lip.
4th. Crying "unclean, unclean" on approaching a fellow creature.
5th. Dwelling alone, that is amid fellow-lepers, without the camp, as defiled and unclean, lest he should infect others.

So strictly was this rule enforced that even Miriam, though the sister of Moses, was not exempt (Numb. xii. 15): nor later on was King Uzziah (2 Chron. xxvi. 19-21; see also 2 Kings vii. 3; Luke xvii. 12). Moreover, this was to continue "all the days wherein the plague shall be in him he shall be defiled" (Lev. xiii. 45-6). There are still separate leper houses and even leper villages in some Eastern countries. A very special reason for lepers or those isolated for other causes, as an issue, or being defiled with the dead in addition to the medical one of contagion was this "that they defile not their camps in the midst whereof I dwell" (Numb. v. 3). Jehovah then as now required His chosen people and their surroundings to be pure physically as in all else.

But this was only the medical and physical termination of the ordeal for leprous or suspected leprous persons. There followed a subsequent and final process. For, this is the law of the leper in *the day of his cleansing*. Leprosy being regarded as an expressive token of sin, its removal had to be accompanied with purifying ceremonies and offerings, which united confession

of guilt and pollution with grateful acknowledgment of God's mercy. But these cleansings are not altogether and purely typical, but practical, judicious, and of a strictly hygienic and preventive nature, and meant to lessen the chance of the further spread of the contagious disease. They are largely akin to what we do at the present day in cases of infectious and contagious diseases after recovery and segregation. The infected person, whether he has scarlatina, measles, small-pox, &c., is bathed and washed or anointed to remove all traces of infection so often thrown off, at least by the Exanthemata, by the skin, which is the chief depurating organ in these cases. So the leper, at the expiration of his prescribed isolation had as usual to be again inspected by the Priest out of the camp. If the plague was healed the necessary final ceremonial consisted in dipping a live bird along with cedar wood, scarlet and hyssop, in the blood of another bird, just killed over running water. This was done seven times, and the living bird let loose in the open field, as was the scapegoat (Lev. xvi. 10-22). Then the late leper had to wash his clothes, shave off all his hair, and wash himself in water to be deemed "clean"; just as we do now in infectious diseases when they are leaving or have left us. After that the late patient could go into the camp; but still he had to keep, or in Bible language "tarry abroad" out of his tent seven days more. On the seventh of these days he had again to shave all his hair, his head, beard, eyebrows, &c.; then to wash his flesh or skin in water, and also his clothes, so as to be "clean" (Lev. xiv. 1-9). After this, on the eighth day, the Priest who made him clean had to present him at the door of the Tabernacle, and there offer a trespass offering, a wave, a sin, and also a burnt offering in the Holy Place as an atonement: the sin and the trespass offering being the Priests and most holy (Lev. xiv. 13). The continuance of the ceremonial, consisting of sprinkling the leper, is best studied in the Bible text (Lev. xiv. 14-20). It intimated that thus the whole man, or combined human entity of body and soul, were now cleansed and consecrated to God; and thus typically, as well as physically, restored to purity. Provision was made for the poor as well as for the rich in these offerings by apportioning them and making them larger or smaller according to their means, so that no one might excuse himself (Lev. xiv. 21-31). "This is the law of him in whom is the plague of leprosy, whose hand is not able to get that which pertaineth to his cleansing" (Lev. xiv. 32). This final cleansing was clearly chiefly ceremonial and typical. But the medical mind will fasten on the shaving and washing it implies; and remembering how minute, clinging and subtle disease germs are, and how they adhere to hair, they will deem that the process is also and to no inconsiderable extent hygienic and preventive

of disease in others. The disease was leaving the patient; and this process meant to speed the parting guest.

Garment Leprosy

It is difficult, indeed impossible, to determine the exact nature of this. We have no corresponding condition in modern life. Some have supposed it peculiar to the Israelites; although it is not expressly said to be supernatural. The Divine legislation regarding garment and house leprosy probably does not mean that these physical things are themselves *diseased*: for disease is only one of the phases of living things, animal or vegetable, and an impossible condition in material things. They are doubtless the Divine modes of drawing our human attention to the fact that human household and personal things, even the most commonplace and ordinary, such as clothing, walls of apartments, letters, books, &c., may become infected with human diseases by adherent, but ocularly invisible, particles and microscopic microbes ready to be disease-communicative from person to person; and thus ever prone to become a household, communal, or even public danger till removed. This is now fully recognized regarding private rooms and dwellings, hospitals, schools, &c., where infectious or contagious diseases have been treated.

"This is the law of the plague of leprosy in a garment" (Lev. xiii. 47-59). If a garment, whether woollen or linen, or made of skins:—

1st. Had a greenish or reddish leprosy in the warp, woof, or texture, it had to be shewn, as with body leprosy, to the Priest; who, if its true nature was confirmed, shut the garment up, that is isolated it for seven days.

2nd. If then the plague had spread, it was a "fretting leprosy"; was deemed unclean, infectious (Lev. xiii. 51-52) and had to be burnt in the fire. That is both the garment and the adherent infection were destroyed by the surest and most potent of all disinfectants—fire.

3rd. If, however, the plague had not spread in the garment, the Priest ordered it to be washed, that is cleansed by another very efficacious and Divinely-pointed-out disinfectant—water; and then shut up for seven days more.

4th. But if the garment after being washed shewed that the plague had departed, it had to be washed a second time, and then considered clean (Lev. xiii. 58).

5th. But, if the plague had not changed the colour of the garment and was not spread it was a "fret inward":

the garment was deemed unclean, and had to be burnt with fire. That is, it had to be completely consumed, whether it be bare within or without (Lev. xiii. 55). The garment was suspicious.

6th. But if the fret in the garment was somewhat dark after being washed, then the leprous part had to be rent out of the garment (Lev. xiii. 56).

7th. If after this attempt to save the garment, the leprosy still appeared in the remnant, it was a "spreading plague," and had to be burnt with fire (Lev. xiii. 57).

8th. If, after washing the garment, there was no re-appearance it had to be washed a second time to be clean: and again fit and safe for use. More decided, clear, or efficacious rules could not be laid down at the present day for meeting this trouble. Nor could anything be added; except that now we avail ourselves of germicides. These Mosaic rules for garment leprosy, like those for the body disease, thus embraced:—

a Report to the Priest-physician.
b Inspection by him.
c Isolation of the suspicious or actually leprous garment.
d Its disinfection, either by 1, washing; or 2, removal of the infected part; or 3, burning of the whole.

House Leprosy

As with garment leprosy, it is difficult to determine the exact meaning of this; somewhat obscure even yet to medical minds. Some have supposed that it was peculiar to the Israelites; although it is not expressly said to be supernatural. But the making and recording of this law shews:—

1st. That the entire laws of leprosy were not made solely for the Wilderness (Lev. xiv. 33-35): but also for their more settled state in Judea.

2nd. That this law is God-ordained.

3rd. That as any one entering, sleeping, or eating in a leprous house became unclean; the disease was thus proved to be humanly infectious and contagious.

When the plague of leprosy had attacked a house the owner had to do certain things (Lev. xiv. 35):—

a To inform the Priest; who commanded that the house be prepared or emptied before inspection, "that all in the house be not made unclean (Lev. xiv. 36).

b The Priest then went to inspect the house and the plague.

c If the plague was in the walls "with hollow strakes, greenish or reddish and lower than the surface of the wall" then the Priest shut the house up for seven days.

d At the end of this period, on renewed Priestly inspection, if the plague had spread in the walls, "then the Priest shall command that they take away the stones in which the plague is and cast them into an unclean place without the city."

e The interior of the house had then to be scraped within, and the dust so obtained poured out without the city into an unclean place.

f The stones so removed had to be replaced by others; and these plastered with other mortar (Lev. xiv. 41-31).

g If this did not suffice to stop the plague; and if it return and again break out in the house, after removing the leprous stones, scraping the interior, and replastering: then another Priestly inspection was made.

h If he should certify that the plague had spread and was convinced it was "a fretting leprosy" (Lev. xiv. 44) the house was "unclean."

i This decision doomed the dwelling, for then "he shall break down the house, the stones of it, and the timber thereof, and all the mortar, and carry them forth out of the city into an unclean place" (Lev. xiv. 46).

k To prevent infection of persons certain precautions were taken. Thus he that went into the house while thus shut up was unclean till the even. Any person who lay, slept or ate in the house had to wash his clothes.

l On the other hand, if shutting up, scraping, plastering, and renewal of the infected stones sufficed to stop the disease, and the Priest on inspection found the plague had not spread, then he pronounced it "clean" and the plague healed (Lev. xiv. 48).

m It was then ceremonially cleansed by him, by a sevenfold sprinkling of the blood of a slain bird, with cedar wood, scarlet, and hyssop, over running water. Another living bird, dipped in the blood of its sacrificial fellow victim being let go out of the city into the open fields. This was to make an atonement for the house. After this it was clean.

Could more minute, practical, or efficacious rules be laid down for getting rid of infection, conservatively yet effectually? These included:—

1st. Inspection of the house.

2nd. Removal of the infected part; either the plaster, stones, or both; and their renewal by new material.

3rd. By destruction and removal of the infected and dangerous debris outside the city, and away from the inhabited part.

To this we of modern times can superadd disinfectants of different kinds, solid, liquid and gaseous; which might obviate some of these methods; by destroying morbific germs and thus prevent disintegration and destruction of property. We may apply strong chemicals to material things that we could not to living beings.

These rules non-professional minds may yet think a relic of the presumed ignorance of early days and unworthy of further attention: forgetful that they are a Divine emanation; a source from whence nothing frivolous can come. Till within the past quarter of a century even medical men could not understand the mystery of house and garment leprosy; and deemed them either mythical, figurative, or the outcome of a past but now defunct morbific condition, unnecessary to study now, except from a medico-antiquarian point of view. The microscope in medicine has however completely changed our view by shewing that the Holy Scriptures are again anticipative and far-seeing in medical as well as in many other matters; that house and garment leprosy are not fictions or far-fetched, but real; and indicating that the necessity for the Jehovistic donation of this important pathological health hint was both great, well-timed, and beneficent; as well as shewing clearly how long mankind have been in taking it; seeing its wisdom, and acting on it practically, to their own detriment and loss both of health and life. Modern research has shewn that both garments and houses and rooms, of private persons and hospitals, may become infectious and contagious, and thus contribute largely to the spread of disease in its worst forms; and not only this old Bible leprosy but many other of the very deadliest infectious and contagious diseases, both acute and chronic; small-pox, scarlet, yellow fever and others of the former class; consumption, leprosy, and others of the latter kind.

On first casual thought it is not easy for lay minds to see how a body disease like leprosy could possibly affect purely physical things, such as clothing or houses and their walls, as mentioned in the Pentateuch (Lev. xiv. 34-55). Though comprised in the Mosaic law, and therefore a Divinely certified and real fact, they are not mentioned or even slightly alluded to by early secular medical writers. The explanation that they were peculiarly early Hebraic, although not decidedly supernatural, does not seem feasible. Others explain them by supposing they were merely analogical, by resembling leprous spots on the human body. A bona-fide human disease cannot possibly affect unorganized matter morbifically in a true sense as it does the

highly organized tissues and blood. But still it does affect them in another way, and by the same agency, namely microbes, often, too, by the microbes of human diseases; which adhere, penetrate, multiply and spread very much as in the human frame: although they clearly cannot kill where no life exists: can only affect and disintegrate to a certain extent physically; but still may be a secret source of danger to persons who touch them or breathe the adjacent air. The probability is that these Biblical forms were not altogether true leprosy or even the spurious forms alluded to in body leprosy; but partly or chiefly efflorescence or deposits of minute fungi, mildew, dry rot, mould, &c., so common even now. These, however, would slowly but surely cling to, creep and burrow into damp walls, cracks, and crevices of masonry or plaster, especially in unhealthy, damp, dark, unoccupied houses or rooms, or even unsunned outside walls and walks. No doubt then, as now these are often apt *per se* to prove detrimental to human health and life, and both directly and indirectly to cause disease by touch or by inhalation of their air floating spores or seeds: and all the more likely to do this if commingled by spores and microbes of true human microbic ailments. Malaria and other diseases; the exanthemata (diphtheria, scarlatina, small-pox, cholera, typhoid, typhus, yellow fever, &c.), may be thus re-originated in new victims long after patients have recovered; the bacteria or their resting spores having lain dormant in this acceptable soil until specially favourable conditions and a prone and suitable human subject appeared to ensure development. The same thing occurs in wooden ships as in stone houses. The well-known history of *H.M.S. Eclair* is an instance. Her crew had yellow fever. Crew after crew were changed; as well as the ship's name; disinfectants employed, all without avail. Yellow fever still clung to her. Practically useless, on that acount alone, and as a death-trap, she had to be burnt; thus illustrating and following the Sinaitic law. Thus alone could the stubborn, strongly-clinging, disease-originating bacteria be killed and got rid of that had lurked in the crevices of the vessel's timbers. The Sinaitic law was doubtless framed 3,000 years ago to prevent the spores of the Bac. Lepræ that might settle on the walls or in the crevices of leper-tenanted houses or hospitals, from spreading the disease further. These leprous-looking patches might consist of leprous bacilli alone, or of these mixed with amicable fungi, more visible than the former to the naked eye. Some of these microscopic forms of plant life, microbic and cryptogamic, are communistic and friendly; others again antagonistic and even deadly. Both kinds had to be not only removed but also destroyed; the harmless as well as the hurtful, to prevent the development of a new leper focus. Modern

research is beginning to find out that the Mosaic leprosy of garments and clothing was of this nature, and detrimental in this sense not only to them but dangerous to humanity. It is now known that scarlatina, diphtheria, and doubtless the slower phthisis and other ailments, not unfrequently linger and spread in families and communities by infected clothing, houses, and other physical things; and may thus remain infected for weeks, months, or even years. The occurrence of leprous-looking patches in garments, walls, &c., would naturally after this Divine hint, lead to the suspicion of danger in early Hebrew days, as now, if the clothing had been worn by or lain near, or been placed in the room or house inhabited by an infected person. Is not the Sinaitic command to destroy these when suspected, as we now do those taken from the acutely infectious and contagious exanthematous patients exceedingly wise and imperative, as well as superlatively anticipative? These Hebrew laws apply not only to their clothing and their Palestinic houses but to ours as well as to our modern workshops, mills, factories, schools, churches, halls, tenement houses, barracks, ships, prisons, reformatories, asylums, homes; and those who occupy or work in them. They are far-reaching and comprehensive: and purposely codified thus for humanity at large: to instruct us that clothing, walls, and physical things may become so fully coated or impregnated with fluid, semi-fluid, solid, gaseous, living, or dead matters, microbic and otherwise, such as the human breath and other emanations, secretions and excretions, which attract and favour the adhesion and growth of debris of all sorts as well as microscopic life, leprous and otherwise, that may become morbific to human health and life. Medical men now speak of consumptive, scarlatinal, variolous, diphtheritic, choleraic, &c., houses, as the *Eclair* was a yellow-fever ship. Not that the stones, bricks, mortar, woodwork or papering of these houses really have these diseases or can have them; but that they harbour the bacteric germs of these ailments and may shed them by contact or by the air to the first guest. They are infected garments and houses just as the ailing are infected persons. Modern science thus explains and confirms the law which Jehovah initiated and taught centuries ago; and shews to sceptical or unbelieving minds that what they may have deemed fanciful, absurd, superstitious, or grossly ignorant on the part of Moses, is based on the highest, that is supreme and infallible wisdom; and puts these laws, their codification , veracity and value as a revelation from the Divinity to early man in a new light; removes them from the ban of being deemed antiquated, obsolete and unnecessary; and shews that these, like all the Jehovistic emanations, are exceedingly advanced and perpetual; and his anticipative foresight and

love for errant man greater than we even yet give Him credit for. Laveran has pointed out recently that in towns and cities there may be infected streets and quarters as well as isolated houses and clothes. Thus in Havre there are streets inhabited by poor people where phthisis does not exist. On the other hand there are streets in which the reverse holds good and the death-rate from phthisis amounts to 13 per 1,000. So also with the medical history of other contagious diseases, such as diphtheria, small-pox, scarlatina, cholera, plague, &c.; certain districts and parts of communities, certain streets, villages, towns, and regions of country, not always the poorest and dirtiest that proved to be stronger foci than others; more disease-producing and dangerous to humanity, like the leprosy for which these laws were bequeathed; plague spots in our midst.

In deciding the important and often difficult questions of reality or doubt and the resulting decision as to cleanliness or uncleanness of the patient; inspecting, isolating, and conducting the treatment of leprosy or leprous-like ailments of clothing or houses, as with that of persons, the Priests were the instruments. As with the Egyptians, these were no doubt chosen for their special medical aptitude; and instructed by Moses; besides being Divinely guided. For this they were the best adapted in the Hebrew community on the scores of leisure and learning. Experience gained by concentration of medical duty in one channel and family would increase their knowledge and skill both in discernment and treatment of true or false leprosy. The Bible text indicates that then as now there often was considerable difficulty in diagnosis; as there will probably always be with some ailments. Moreover, it should be remembered that it would be easier for experienced eyes, like those of Moses, to differentiate between true leprosy and spurious or leprous-like ailments, than to describe either the true or false so clearly as to make differentiation easy to us of modern times. This uncertainty and difficulty appear to be anticipated in the concluding verse regarding leprosy; "This is the law for all *manner* of plague of leprosy and scab; and for the leprosy of a garment and of a house, and for a rising and for a scab and for a bright spot; to teach when it is unclean and when it is clean; this is the law of leprosy" (Lev. xiv. 54-57). For these duties responsible persons had to be appointed. For the Hebrews in the Wilderness and in Judea no doubt forgat and attempted to evade or disobey God's laws of leprosy of body, clothes, and houses alike; as frequently as they did His moral, social, spiritual, and other laws of the Sinaitic code; notwithstanding the fact that their disobedience was punitive.

This section of the hygienic laws of the Pentateuch, the hygiene of disease, is not human or Mosaic, but Divine, and

therefore "holy"; given to His own selected and "holy" nation; to be classed with and received and acted on in their spirit with the same care and reverence as those sections which are more especially "holy," the Decalogue: and not only by the Hebrews, but by all Bible-believers. Nor can these forget that one of the main uses to which that ancient, widespread, and much feared bodily disease leprosy is put in the Holy Scriptures is to allegorize and symbolize soul disease or sin, and its effects: the body disease being made typical of the soul's ailments. For this purpose no more apt or better selection could have been made out of the many bodily afflictions than that of Jehovah, as might have been expected. For the two, sin and leprosy, closely resemble one another in being loathsome, infectious, obstinate, widespread, coeval with the race and deadly. As disease germs find no suitable soil in the man of strong frame, pure blood, and great resisting power; so the seeds of sin find none in the individual of clean-heart and heaven-strengthened will. If the latter condition exists, the virtues, holiness, love, faith and charity give no field for the settlement of the many varieties of evil: if absent, the greater and lesser vices find a fit nidus and a welcome home.

The vital importance of cleanliness, &c., as health preservers and of uncleanness, &c., as disease inducers and promoters, are specially emphasized regarding leprosy. Many of the laws, and these among them, laid down in the Sinaitic code might, on cursory inspection, be regarded as purely ceremonial, typical and inculcative of spiritual purity only. But the isolation and other rules regarding leprosy, an actual and not a figurative disease, and one with which Moses must have been familiar at On, and subsequently from personal (Ex. iv. 6) and family experience (Numb. xii. 10) cannot be regarded as purely typical injunctions against sin: any more than can the sanitary laws relating to public hygiene, disposal of the dead, dwellings, &c. If not purely they were all largely, perhaps mainly, sanitary for the body and not solely emblematic and ordained to inculcate social, moral, and spiritual purity. They included a multiple lesson to shew the importance and necessity for cleanliness in all things and for the whole human entity, body and soul alike. These were real and not figurative laws; made for a real ailment; so prevalent all round the tribes in the Desert that Jehovah tried to save them from sickness as well as sin, and in His mercy and love made wise and stringent laws for its prevention: otherwise they would have attacked the Hebrews and have spread widely and fast in such a crowded community and under such conditions as those of the Desert. A leper nation would have been unfit to cope with and expel the Canaanites; would no longer have been a model people in hygiene or any-

thing else, but loathed instead of being looked up to; the vigour of the original carefully-selected stock would have been dissipated; and all the Divine plans for the social, moral, and spiritual benefit of the Hebrews and the human race compromised once more, as formerly, at the Dispersion, the Flood, and in Eden.

In these practical laws for a terrible disease Jehovah has embodied for our general human use some very comprehensive medical maxims which have a double application; for leprosy of soul as well as for the physico vital disease; viz.:—

1st. That in human life there is such a thing as body disease or sickness; as well as soul, moral, social, intellectual disease, evil, or sin.

2nd. That there is such a thing as communicability of these ailments from person to person, to their great detriment and perhaps death.

3rd. That disease in all of these alike is capable of being forestalled and prevented.

4th. That prevention of disease of all kinds, both of body and soul, is better than cure.

5th. That the best way to meet leprosy, of soul and body alike is to prevent it.

6th. That the best way to meet all of the infectious and contagious diseases, of which leprosy has been chosen as the type; not only chronic ones like this, but also the acute exanthemata, is to prevent them.

From the law of the leper we may also infer, as the Hebrews might have done:—

a That Jehovah teaches that leprosy is positively infectious or contagious and discussion of that point therefore wasted.
b That isolation is positively necessary for its treatment.
c That hygiene is superior to therapeutic treatment of leprosy and the only efficacious kind.

It was on account of the physical infection and danger, that Hebrew lepers were isolated from the camp, and largely also why the Hebrews as a body were kept isolated from other

nations. It was to aid these far-reaching and widely-benevolent God-like objects that Jehovah promulgated the now-neglected revelation called the "law of the leper." Leprosy of soul and of body are both abhorrent to Jehovah. His desire was to keep both from His "chosen" and "holy" people; and "stamp out" what was already there. Thus Moses had once again the great honour of being not the indirect and fallible interpreter of the Divine hygienic laws, but the direct recipient, transcriber, and practical applier of those direct from their Maker and Codifier; royal thoughts, God-like, and perfect: the "law of the leper" being like the rest of the Divine Hygienic code, very broad, deep, far-seeing, far-reaching, and comprehensive.

The "law of the leper," like the rest of the hygiene of disease, as well as the hygiene of health; given in the comparative infancy of the race; and by the Maker of the race Himself: therefore Divine and indisputable; was something more than the mere outline or imperfect alphabet of hygiene; even as the moral, spiritual, political, ecclesiastical and other codes were not elementary and crude. The sanitation called Mosaic was far advanced: and not only included but put in the very foreground that factor which is the copestone and base fact of all sanitation, namely, perfect cleanliness and purity in all things, as the chief of the many means that usually combine to preserve health and prevent disease. The cleanliness enjoined for leprosy was so thorough and minute, and not only for the person but all else, dwelling house, tent, utensils, furniture, bedding, even holy places and sacred things, that the unthinking and uninitiated are apt to regard them as absurdly and unnecessarily trifling. The main object of all was to anticipate pollution and prevent its results, disease of various kinds; a system initiated by Divinity and obviously far more philosophical, practical, and preferable to the opposite, namely, permitting pollution to occur, through ignorance, indifference, or unbelief, and then having to oppose and cure its results, disease, by therapeutic measures.

This sanitary code for coping with leprosy and restricting if not extinguishing it, was adapted both for the tent life of the Desert Israelites and for their house life of later Judaic times. Modified to suit the times their rules are identical or very similar to our modern laws for meeting not only leprosy but also other infectious and contagious ailments; for example, small-pox, yellow fever, cholera, &c., &c. How much disease would have been saved, how many lives, and how many of these ailments, leprosy included, would have long since stamped out or shorn of their terrors if the Sinaitic leper code had been received and followed by all nations sooner. Even now the trained common sense of modern medical minds can glean some

utilitarian hints from a study of the Biblical law of the leper. The Pentateuch, with its invaluable and instructive contents, is not now and was never meant to be purely Hebrew property, or applicable to Hebrew humanity alone; any more than the New Testament is for Gentiles only. Both are the world's property, and all its knowledge, hygienic and otherwise. And in this enlightened, appreciative, and latitudinarian age the Biblical law of the leper will be received as further proof that neither are the Holy Scriptures or the hygienic knowledge they contain, antiquated or obsolete: but on the contrary, anticipative, searching and broad; as the oracles of God might be expected to be in this hygienic subject as in all else.

Although there is no definite Biblical allusion, there can be little doubt that not only leprosy but all the other diseases and conditions spoken of in the Sinaitic code were not only hygienically treated by isolation and supreme curative and preventive cleanliness and disinfection; but also by special medication. The Papyrus Ebers shews that 200 years before the era of Moses; that is about Jacob's lifetime, disease was well studied, including those caused by internal parasites. And that medicine was actually used for the Mosaic diseases is indirectly and inferentially shewn thus, "And when he that hath an issue is cleansed of his issue" (Lev. xv. 13). This implies active treatment, and was followed by certain ceremonial cleansing and sacrifices. We can scarcely believe that the isolations and washings of the body, clothing, &c., was the whole of the treatment employed after the art of the physician, and the apothecary (Ex. xxx. 25). The Egyptian medical training of Moses was Divinely intentional and anticipative. It would enable him to teach Priests purposely set aside for this medical work. How much more advanced and modern is the Heaven-derived medico-hygienic matter he has left behind for the benefit of posterity than the crude, half-formed ideas of the ancient physicians, like Celsus, Galen, Hippocrates, &c. Where ancient Egyptian and Hebrew philosophy failed and science stopped, God and His Pentateuch and Sinaitic laws stepped in and opened up new fields of medical knowledge and practice; and rules to endorse the future secular findings of our more enlightened days.

From what has been said the following hints, conclusions and inferences concerning leprosy and its Biblical allusions may be drawn; as meant to be inculcated on the general and especially the medical world of that day and that of all time.

1. Bible leprosy was not a hypothetic disease, idealized

and quoted for purely symbolic or typical purposes and soul ailments; but a real physical malady, much dreaded, obstinate, deadly, widespread, contagious and loathsome.

2. That the hereditary descent of leprosy as a disease is and has been true; so that modern is doubtless practically identical with ancient leprosy; though mayhap less virulent, owing to oft-repeated propagation and dilution: as with the bacteria of measles, diphtheria, scarlatina, by recurrence; and also small-pox by vaccination. Improved sanitation, climate, and other bacteria-weakening factors may also have contributed to this result.

3. When we consider that leprosy may now be said to be a world-wide disease; and remember the minuteness of its microbe and its germs; their distribution by water and the dust which blows far and wide and settles everywhere or is breathed by man, with their great vitality and hardihood; the wisdom of the Biblical rules, especially the ablutions, isolation, and destruction by fire, if necessary, will not only be apparent: but also how much disease might have been prevented, and how it might have been limited had the wise Bible maxims been earlier and more widely received and acted on after the Divine mode "with all our might" (Eccles ix. 10).

4. The Heaven-designed and codified rules, hygienic and curative, for wisely opposing leprosy, were deemed no side issue, but so important as to be made an important sub-code of the Sinaitic law; a position from which man has no right to dethrone them.

5. These Divine laws, apparently ancient in human eyes, are not so to Divinity; nor are they either obsolete, temporary, or annulled, but still as binding as the Decalogue.

6. The Creator both of the disease and its victim deems it an infectious or contagious and communicable ailment. Could man meet a better judge or higher authority to settle this still mooted question: better evidence be adduced: or can all our human ideas, experimental and theoretical, equal this single one, which is Divine and infallible? Are we to ignore the

authority of the Bible; and slight the dictum of the supreme authority on medical and hygienic matters; who guided the mind and pen of His servant and amanuensis; himself a medically educated man?

7. These rules for opposing this chronic, infectious, or contagious disease by hygienic or preventive measures are meant also as a hint for the generalization and extension of this law and mode of meeting disease, not only to the entire class of infectious and contagious ailments, acute, sub-acute, and chronic, as the best and Divine mode of meeting, opposing, and eradicating them: but also the best plan of opposing disease generally; a method, the *preventive*, infinitely preferable from every point of view to the earlier and humanly devised *curative*.

8. Is not our modern wisest course in opposing the spread and permanence of modern leprosy, neither to ignore nor despise but to receive the Biblical confirmation of the contagiousness of leprosy; and broadly follow the etiological and sanitary views laid down therein for the disease of early Bible times; because, like the Scriptures in their entirety, they are perennially authoritative.

9. In this medical, as in all other matters, sciences and philosophies, we may still learn from the unfathomable mine of the Holy Scriptures; nor therein are ever likely to discover false doctrine, teaching, or advice; or to find its dicta fallacious, however long we may have been, as now, in finding out their truth, value, and beneficence. Mankind has ever been slow to receive and follow Bible advice: not only in hygienic but in other matters, sanitary and otherwise: to their own loss.

10. This disease for which a special hygienic law, "the law of the leper," was designed, codified, and named by Jehovah, forms a distinct and important sub-code of the laws of Sinai, given for the welfare of Man's body; as that other law-code for the spiritual, moral, and social leper, the Decalogue, was bequeathed for the prevention and cure of the leprosy of sin. Though used by Jehovah as symbolic of sin and the best type that could have been chosen, the typical is only an

additional secondary and not a primary object of the law of the leper; its Divine aim being medico-hygienic.

11. In Mosaic days, as now and always, Jehovah often used disease as a means and time for the inculcation of two-fold conjoint lessons, temporal and eternal.

12. By the law of the leper Jehovah inculcated the all-important fact that the prevention of disease, whether trivial or severe, is infinitely better and wiser than its cure in infectious and contagious ailments: and also shewed practically how to effect this best. The wider subject, the hygiene of disease, contributed to endorse and emphasize this by extending it to disease generally. While again the enactments of the hygiene of disease, combined with those of the hygiene of health, both recorded in the Pentateuch, combined to prove definitely the great medical fact that the prevention of disease as a whole is better, wiser, and oftener far easier than their cure: and preventive a higher branch of medicine than curative.

13. Jehovah conferred an incalculably valuable boon on the spiritual, moral, and social entity of humankind by giving them that precious rule for their higher conduct, the Decalogue. And, by bequeathing the "law of the leper," the hygiene of disease and that of health, He added largely to the value of the bequest, by thus completing His legislation and education for the whole man; thereby giving not only humanity at large but also Divines and physicians, who minister to them in sacred and medical matters, much to be grateful for.

CHAPTER III

CHILDBIRTH

"Ye shall be clean" (Num. xxxi. 24; Ex. xxxvi. 25).

The function of reproduction is not only one of the most interesting but also one of the most important in the human body; and that not to individuals only, but also to communities, tribes, nations, races, and indeed the entire human family: because it is that by which these are severally perpetuated and increased, either well, indifferently, or badly, according to its perfect or imperfect performance. But our human interest in child-evolution begins, not with the birth of the infant, but extends back to the first days of these infants who are to become the future fathers and mothers. The male child is father to the man; and the female child mother to the woman; as the latter are simply the fully developed adult beings. The children of the present will be the fathers and mothers of the future. The kind of children they will evolve will depend largely on two biological factors; namely, *a*, on the stock from which they sprang; and *b*, on the nature of the sanitary environment to which they are subjected during the successive stages of infancy, childhood, youth, and their subsequent reproductive age. Healthy, vigorous parents are the most likely to have healthy offspring. The reverse also holds good. A healthy environment and salubrious surroundings are the most likely to maintain the vigour, health, virility, viability, and longevity thus hereditarily transmitted. These deductions apply equally to the reproductive as to all other human functions and systems. It is therefore well for Governments to safeguard and promote the health of any people; because thus they enhance that of the reproductive faculty, and thus the increase of the community or nation along healthy lines: especially as, during this long period of growth and development individuals are constantly liable to deteriorations of health and even actual disease; and these obviously are again very apt to affect the reproductive faculty for evil; and hence to deteriorate the people. And this, moreover, affects both sexes; the child begetters and the child evolvers. These epochs therefore ought

to have their own special and appropriate hygienic requirements and environments: for male health is as necessary for satisfactory impregnation as female for child evolution. And it is necessary to nurse the yet undeveloped generative function, to keep it healthy and fit in both to carry on the ever-widening cycle of humanity.

Our interest in child evolution thus begins long anteriorly to impregnation and the starting of a new being; in fact with the very birth of the fathers and mothers of the future. But this eventful physiological fact having occurred, the importance of the reproductive system and function are materially increased: but with this also the necessity for constant and careful attention to the hygiene of the mother, the chief agent in the future progress of the evolution; because this necessarily includes that of the yet unborn child. The pregnant female has two lives and two healths to look after, her own and those of the engrafted infant. Care should therefore be directed to promote the growth of a healthy being by making the health of the nourishing mother good by judicious and special sanitary surroundings. And the entire period of pregnancy should be strictly watched to ward off morbific agencies, dangerous alike to mother and child.

But it is chiefly towards and at the end of the process of gestation when the child has reached the viable stage and is ready to be safely separated by Nature and extruded from the parent, that the greatest danger to both lies, and that our hygienic precautions should culminate. The very complicated, marvellous, and microscopically minute processes of intra-uterine child evolution and its final childbirth are altogether the most wonderful of the myriad of curious phenomena of life and the greatest miracles in this our earthly creation; although normal, physiological, and healthy processes in vigorous female frames: and yet from first to last beset with constantly increasing danger to mother, child, or both; and exceedingly apt to have morbid, pathological processes of many different kinds engrafted upon them, of a nature too numerous to be entered into here. These and the danger reach their climax at childbirth. This will go far to shew how it is that, like death, our exit from the world, so birth our entrance, is for many reasons one of the most interesting and important events in the life history of every human being: and a critical episode because of the simultaneous and mutually originated danger that may at any moment happen to both mother and child during that momentous period and process. Mothers know from experience how true are the early Biblical expressions "labour" and "sorrow." Physicians alone know the danger run during this numerically increasing process. The present world population

has been estimated at 1,700 millions: and the deaths at an average of one per minute. As the race is constantly and rapidly increasing, the births necessarily surpass the deaths. This fact necessarily materially widens the interest in the subject and makes it a matter of ever augmenting moment to every individual throughout the entire race for which this function of reproduction was initiated and is intended to perpetuate. The number of human beings that have been evolved by the Jehovistic forces and laws of Nature from Adam and Eve, and the number of mothers that have undergone the process are beyond human power to compute: as are the aberrations and casualties that have accrued therefrom; many no doubt avoidable, and the result of culpable ignorance, carelessness or accident.

Certain facts connected with childbirth will make this better understood. This physiological process, though healthy, is accompanied and followed by certain pertinent though subordinate physiological processes, events, and conditions, which appertain to recovery; that is the return of the mother to her original or normal condition. These include:—

1. The cicatrization or healing of the discharging utero-placental wound, lesion, raw surface or sore, left by the separation of the placenta or afterbirth from the womb. This has to heal and close like other sores elsewhere.
2. The gradual involution or reduction of the still enlarged womb; as well as the other internal and external parts: a still slower process than the last.
3. Both of these are accompanied by an excretion, more or less profuse, and resolvent; but normal and healthy, and meant to successfully effect or aid the two former processes, and restore the female, her organs and functions to their former normal condition. Nature and her physiologically restorative processes kindly steps in and does for the mother what no medical skill could accomplish. These three important results are the combined effect of her inherent healing powers. But Nature has to be waited on; helped and not hindered; aided and not opposed; so that none of the three may be prevented or perverted and morbid processes engrafted thereon to endanger the local or general functions, the health and even the life. Man heals not; but we may aid Nature and its Vis Medicatrix inherent in us all in these her supremely beneficent efforts, by medical methods and arrangements, by wise sanitary surroundings, recuperative agencies, and sanitary precautions. Among these rest, quiet (marital and otherwise) and great cleanliness

are among the most important. This constant and great care and the general vital interests involved, make this event of childbirth a most important, anxious and critical period. Humanity is so familiar with its constant recurrence and its usual safety, that we minimize or forget its possible dangers. The hygienically ignorant find it hard to understand that rest, quiet, and especial cleanliness are among the necessities of healthy parturition and recuperation. These discharges are really waste products or excretions, thrown off thus because they are irritant and poisonous to the frame; and if not removed might become disease-producing, because they are putrescent, germ-inviting, and the very soil in which morbific microbes are apt to settle and develop deadly trouble, if allowed to remain and contaminate the blood and system even in small quantity. It is refuse, and must be removed to regain health. Internal lesions, like these, moreover, are usually worse to heal because situated, so to speak, in a hotbed; unlike outside air-cooled ones: and not visible, like the latter, so easily reached or tended medically or hygienically.

The normal healthy process of reproduction is thus from first to last so beset with hidden dangers that may at any moment and from very subtle and not easily foreseen or prevented causes, initiate extreme and varied danger to mother, child, or both. So that during the entire period and process of child-bearing, and even before this critical and final process is entered on, the utmost hygienic care is necessary to keep the female body, generative organs, and reproductive function sound and healthy. Thus it is how the mother is gradually restored to health by Nature; perhaps to repeat the process and beget other female children, each to follow the racial cycle of body evolution, child-begetting, and re-transmission by heredity of their procreative capabilities.

The Biblical Hygiene of Child-evolution.

The wise and beneficent forces and laws of human reproduction, obstetrics, and their hygiene, were implanted by the Creator and made hereditary in the primal pair. Some of the more important base facts of the hygiene of child-evolution and childbirth were first revealed in a codified form to the Hebrews in subsequent early ages, and on very similar lines. For the incomparable, infallible and pioneer sanitarian, Jehovah, has been teaching us all this for over 3,000 years by His

early history of the Jewish race in the Holy Scriptures. Ever since the days of Abraham He has been legislating and exemplifying the practical bearings of infant evolution; and ever since the days of Moses He has been teaching and recording them along these very lines: and in a manner the wisdom of which modern science and practice of far more recent and indeed 19th century knowledge can neither overthrow nor call antiquated or obsolete. Our present concern chiefly centres in the great fact that Jehovah not only shewed an interest in our racial development and legislated for the Hebrews to minimize or avoid these obscure but great dangers, by drawing attention to the evolution of families, tribes, and nations, and also to the hygiene of child-bearing and childbirth. To understand fully how much and what Jehovah did for the hygiene and health of the weaker part of the Hebrew community, its women and children; especially for that all-important event which so closely concerns both, namely childbirth, it will be necessary to study the subject from a prominent standpoint; and to recall somewhat of the early history and rise of the Hebrew people. From this it will appear that He aided Jewish development in three marked but different ways: thus—

a By preliminary care, selecting and initiating a healthy stock and a healthy environment.

b During childbirth and child-bearing, by giving the women health, and special aid.

c After birth by providing and enforcing laws for a healthy recovery.

Bible history tells us that from the call of Abraham onwards the Hebrews were taken under God's special care: and that He began to develop them in accordance with His Divinely beneficent purpose; and thus had a materially increased interest not only in the then existing Hebrews but also in childbirth, children and human evolution. His first care was to promote their increase and national dominance. It is well to study how God manifested this care; what He did to promote this new object; and how He effected it. This He did through the fathers and mothers; especially the latter, from whom they specially sprang, and to whom therefore was imparted an unusual share of the maternal instinct common to all feminine humanity. The Divine hygienic prevision was great. He doeth all things well (Mark vii. 37).

Both interests therefore, the Divine and the human, combined to hedge the successive new offshoots of the Hebrew community with care and surround them with safety from their very birth and even anterior to it. Children are the future men and women of a nation. This he did by making laws of every sort for their welfare; both temporal and eternal, and by

codifying these spiritual, moral, social, physiological, and hygienic enactments; and not only strictly enforcing but also systematically teaching them, especially during the lengthy forty years' education of the Wanderings. This is seen all through the story of this period from the call onwards. Moreover the Hebrews were enlightened, and knew they and their offspring had a special destiny (Ex. vi. 7). Jehovah not only directed his plans accordingly; but the people largely aided Him in all that so materially concerned them; and especially by having a special care for the number, sex, viability, virility, and general welfare of the offspring of whom they were proud. Necessarily they had also a like interest in the health, strength and welfare of the mothers who begat them; as also in the health and hygiene of the pregnant state; as well as in their final delivery; and the recovery therefrom. The great supernal interest in, and the national importance of the Hebrew children for God's special purpose is shewn by the laws made for them at Sinai; especially as regards priority and heirship; constant and great attention to fecundity from conception onwards to birth; care during labour; and even after birth. These were all included among and deemed an integral part of the most important and imperative of all the combined social, political, moral and spiritual duties in the eyes of every Hebrew, male and female. It formed part of their creed. Children were "a heritage from the Lord" (Ps. cxxvii. 3). Jehovah accordingly endowed the Hebrews specially, and in the following varied ways.

1. The blessing of children, especially males, particularly an uninterrupted succession of these, is fully recognized and highly valued among all eastern nations. This, and especially the *maternal* instinct, was especially marked, and no doubt Divinely implanted and fostered among the early Hebrews by the promises familiar to them all (Deut. xiv. 1); and by the teaching of the Wanderings (Deut. iv. 40). On the other hand, the denial of children was regarded as one of the greatest deprivations, and even as the severest of punishments (Gen. xvi. 2; xxix. 31; xxx. 1-14; Deut. xvii. 14). A miscarrying womb was also deemed a punishment (Hosea ix. 14). To be barren was then as often even now, deemed a reproach, as with Rachel (Gen. xxx. 21) and Elizabeth (Luke i. 25). But the Hebrews were early led to see who controlled this highly important function: and that it was the Creator of the body who opened or shut the womb, and enabled it to perform its normal function satisfactorily either with individuals (Gen. xlix. 25; Sam. i. 5; Is.

lxvi. 9), or families like Abimelech's (Gen. xx. 15). Moreover, the specially implanted love of the fathers for the offspring of their best beloved wives in preference to those of their concubines is evident: thus of Jacob for Joseph and Benjamin, sons of Rachel; his first and always his favourite.

2. As it was through this great important and ever recurring function of human childbirth that Jehovah developed His beneficent plan of human redemption, He went to the very root of the matter, and did this as He does all things, well. A primary and essential factor in Hebrew evolution was the selection of a healthy *stock*; a suitable initial pair. From these He was to develop a nation, meant to be "holy," a model people, and "Kingdom of Priests"; men and women not only spiritually, morally, socially, but also materially and physiologically the dominant and leading race of the world in all things except sin. As none of the then existent peoples rose to His standard, for they were all steeped in wickedness, God chose to develop a new one; and accordingly selected an initial pair, Abram and Sarah; whom He enlightened and led, and promised to multiply as the "stars of heaven" (Gen. xv. 5) and as the "sand upon the sea-shore" (Gen. xxii. 17), and as the "dust of the earth" (Gen. xiii. 16). These were chosen for their pre-eminent qualities, especially that they were God-fearing (Gen. xii. 4-8): but also doubtless for their virility, physiological excellence, and biological fitness. A prolific male and female were essential. Strong parents beget the healthiest male and female offspring by heredity: for this qualification is double. The children are the fathers and mothers of the future. Thus was the perpetuation of the nation ensured. For a healthy, maternal frame implies a healthy sexual or reproductive system and healthy womb, capable of initiating and carrying on a strong offspring by perpetuity; and also capable of strong, easy and rapid child-bearing. Jehovah thus specially interested Himself in the main factors of this Hebrew function, the reproductive. Abraham was a normally fertile man, as with Hagar (Gen. xvi. 15); Sarah (Gen. xxi. 2); Keturah (Gen. xxv. 1-2): though not at first with Sarah (Gen. xv. 2). Doubtless unusual fertility was Divinely disposed on him when his name was changed (Gen. xvii. 5) from Abram (father of Abram) to Abraham (father of a

multitude), in furtherance of the above-mentioned promise of unusually rapid national evolution (Gen. xii. 2), a promise that was subsequently reiterated (Gen. xiii. 16; Gen. xv. 18; Gen. xvii. 4; Gen. xxii. 17); as it was also to his successors (Gen. xxv. 23; Gen. xxviii. 14; Gen. xxxv. 11). But at the very outset Jehovah encountered and had to meet a serious obstacle in Sarah, who was not only congenitally (Gen. xi. 30) but also age-barren (Gen. xvii. 17; Gen. xviii. 11). For at this period both she and also Abraham, the pair in whom all the nations were to be blessed (Gen. xviii. 18) through their progeny, were old and well stricken in age (Gen. xviii. 11); Abram being 99 (Gen. xvii. 1) and Sarah 90 (Gen. xvii. 17). Sarah, in whom the main disability rested, had "ceased to be after the manner of women" (Gen. xviii. 11). This period, the meno-pause, marks the end of ovario-uterine, reproductive and sexual life. Indeed both she (Gen. xviii. 12) and also Abraham (Gen. xvii. 17), judging from the standpoint of age, deemed themselves and each other past the fœcund age (Gen. xvii. 17; Gen. xviii. 12): and both laughed at the suggestion of child-bearing (Gen. xvii. 17; xviii. 12). But "is anything too hard for the Lord" (Gen. xviii. 14) was the apposite question asked in this very case. Can we doubt that this obstacle was Divinely caused to enable God to manifest His power and control of this great event of life? God met it by a miracle; viz., removing (Gen. xviii. 14) the physical or physiological barrier, condition or conditions, whatever these were (Gen. xviii. 10) that prevented impregnation. The sceptic laugh soon became one of joy by the birth of Isaac (laughter). Singularly, and doubtless by Divine intention, Rebecca, Sarah's successor in the lineage, had a similar disability; by Isaac devoutly ascribed to God, who removed it after entreaty (Gen. xxv. 21). Still more singularly Rachel, her successor and Jacob's wife, was similarly afflicted and had her disability similarly removed by God (Gen. xxix. 31). These three successive instances were doubtless designed to emphasize the lesson that God's hand is in this as in all the events of life, to help or to hinder it even in families, like Abimelech's (Gen. xx. 17-18), the wombs of whose wife and maid servants were specially closed and opened by God. The first sign of unusual fertility appeared in Jacob, who had twelve sons to develop the future tribes. Leah begat Reuben, Simeon,

Levi, Judah, Isaacher and Zebulun; Bilhah bore Napthali; Zilpah, Gad and Asher; Rachel bare; Joseph and Benjamin. With that persistency which is one of God's characteristics, He followed this up by giving special care to continue this increase in Egypt, even under the most adverse circumstances. In Goshen during the first prosperity, they developed marvellously, "grew and multiplied exceedingly" (Gen. xlvii. xxvii.) so as to excite first the envy and then the hatred, fear, and oppression of the Egyptians. Nor was it different during the subsequent rule of the Pharoah who knew not Joseph (Ex. i. 8); or Egypt's indebtedness to him, but enslaved his fellow Hebrews; for then they "were fruitful and increased abundantly and multiplied and waxed exceedingly mighty, and the land was filled with them" (Ex. i. 7) and they were more numerous and mightier than the Egyptians (Ex. i. 9), notwithstanding the bondage and rigorous service. The more they afflicted them the more they multiplied and grew (Ex. i. 12); "for God looked upon the children and had respect unto them" (Gen. ii. 25). This tribal and national development was so rapid that at the Exodus, that is four hundred years after the Abrahamic call, his two and Jacob's subsequent 76 (Gen. xl. 26) had multiplied into over two millions. Jehovah made his care even more marked in the Desert; especially of the women and unborn children. During the forty years of the Wanderings God's special attention to this function was continued so that by His decree at Sinai "they had not a male or a female barren" (Deut. vii. 14; Ex. xxiii. 26); and that none of their women cast their young or had premature, untimely, or dead progeny (Ex. xxiii. 26). Impregnation and viability were thus both made certain; proving how close and deep was the Jehovistic care to rapidly develop a strong, healthy race: all of whom, moreover, were fully virile and fruitful; and gifted hereditarily to biologically carry on the race and aid in its rapid numerical development. Jehovah had made the Hebrew reproductive function perfect. The Hebrew women begat and developed children of the highest health, strength, and virility; and capable of transmitting these important boons onwards. God regarded both of the essential double factors in reproduction, namely male adaptability and female receptivity. There was no male infertility or female barrenness. And the hereditary transmission of these im-

portant functions in their perfection were assured. Moreover, these faultless functions had an indirect bearing on the healthiness of the Hebrew race. For it may be laid down as a rule, that while child-bearing is a strictly normal and healthy function, nothing contributes more or sooner to ruin the female sexual system than premature births, especially if these are frequent: because this is an "untimely" and abnormal process. At the full time child-bearing is normal. The infant separates from the mother like ripe fruit from the tree. At all previous periods it is abnormal, out of the proper course of nature; and fraught with danger both to mother and fœtus. Miscarriages and premature births are therefore undesirable and if possible to be avoided. Moreover, the Hebrew "labours" were never more abnormal or difficult than could be dealt with by their midwives. This may be gleaned from the Bible text.

3. The special biological pre-eminence of the Hebrews and their high health thus initiated by Jehovah, were specially cared for, transmitted by heredity, and guarded in every possible manner by Heaven. This Divine care from the call onwards is evident during the succeeding 400 years that comprised the lives of the Patriarchs and the residence of the Hebrews in Egypt until the Exodus: as well as during the forty years spent in the Wilderness. We see this first especially marked during the bondage, and particularly during the ten plagues. Thus the murrain was confined solely to the Egyptian cattle (Ex. ix. 6). The Hebrew herds escaped disease. Thus the milk and flesh-food supply of the Jews were not deteriorated or poisoned by sickness; and the popular health thereby impaired. The plague of boils and blains (Ex. ix. 11) was confined to the Egyptian people. Whereas the blood and tissues of the Hebrews were kept in their usual normal, healthy condition. The subsequent death of the first-born among the Egyptians and their cattle (Ex. xi. 12) did not decimate the Hebrew males or retard their national increase. So also after the Exodus and during the subsequent initial stages of the forty years' national education the people were told plainly "if thou wilt do what is right in His (God's) sight and give ears to His commandments and keep His statutes, I will put none of those diseases upon thee which I have brought on the Egyptians" (Ex. xv. 26). This clearly implies special preservation from

sickness, and special care of the Hebrew health and vigour. The diseases of that period and those of Egypt, with which they were personally familiar, were to pass them by. God was to keep them in special health by His special providence. In this the Hebrew women necessarily fully participated. And in these, the procreative health and vigour were kept intact and not permitted to degenerate. These promises were subsequently repeated during the Wanderings: and special laws made for successful, unfailing and rapid reproduction with a view to the speedy development of a healthy race for the Jehovistic purposes for the human race generally; as already mentioned.

4. The healthy, vigorous bodies with which Jehovah blessed the Hebrew women, implied not only a faultless and normal, sexual and reproductive function, but also a healthy womb for the development of the infant, and to be the chief expulsive power: that organ which of all others holds so dominant a place in the human female as to form the basis of the well-known and trite medical aphorism, "the womb is the woman." The Holy Scriptures furnish skilled professional proof of this. The Hebrew midwives have left testimony, Biblically endorsed, that the Hebrew women were not as the Egyptian women, but "lively and oft delivered ere the midwives come into them" (Ex. i. 19). This implied a vigorous, speedy, easy, safe, and correspondingly painless labour: a boon of inestimable value alike to mother and child, especially to nomads dwelling in tents. This formed an important item of the Jehovistic blessing and gift in aid of childbirth. The Hebrew women were so constructed, anatomically and physiologically, that Nature encountered no difficulties in effecting delivery, and usually required little or no aid. Moreover, the Hebrew women were specially gifted by Jehovah with a superabundance both of the ordinary human disease-opposing and disease-curing boons bestowed on all more or less; namely the Vis Hygienica or disease opposing power inherent in the body and its different organs and tissues which kept these from disease; but also of the Vis Medicatrix that enabled them to recover speedily from low or subnormal obstetric conditions such as those which follow more or less every childbirth.

5. Added to these hereditary boons, especially high health, to initiate, develop, and to bear healthy offspring, and lastly to recover from the exhausting

ordeal; Jehovah superadded a systematic, carefully regulated and enforced hygiene and sanitary environment in the Desert, in order to keep the bodily and reproductive health of the mothers up to the original normal standard; and had them taught the laws of hygiene, and the reasons for such precautions, so that they might the more willingly obey. Thus during the 400 years from the call of Abraham to the Exodus, especially during the 40 years of the Wanderings, God sums up the result by saying "the Lord thy God hath been with thee, thou hast lacked nothing" (Deut. ii. 7). They were taught that their hygienic efforts would be aided by Him who made the controlling laws and forces. "What nation is there so great who hath God so nigh unto them as the Lord thy God in all things that we call upon Him for?" (Deut. iv. 7). They were also fully taught the worth of these laws: "and what nation is there so great that hath statutes and judgments so righteous as all this law which I set before you this day?" (Deut. iv. 8). These included the hygienic sub-code. The chief items of the new environment in which Jehovah put these early Hebrews to promote their health are:—

a The pure air of the Desert, away from the oft contaminated atmosphere of fixed communities, swamps, &c.

b Tent, open-air, and nomadic life, all enabling them to enjoy the full benefit of this.

c An abundance of healthy special food, drink, judicious exercise, satisfactory rest, mental quiet and ease and Godliness to add to this peace of mind.

d A systematic, carefully regulated, highly sanitary life and regimen.

e An imparted knowledge of the Lawgiver and the law, including the hygienic code; shared by the women. Individual information is necessary for safe health preservation. The daughters and children, the child bearers of the future were thus taught how to keep themselves in the highest health as well as the mothers.

f Added to these the Hebrew females had Jehovah's special blessing on reproduction and child-birth to enable them to evolve His "special people."

Thus the entire Hebrew hygiene, public and private,

and the national and individual environment were specially ordained, and calculated to keep not only the males and children, but also the females, married and single, especially the child-bearers, in the highest health, sexual and otherwise.

6. But even natural labours have to be guided and watched and sometimes judiciously helped. Civilization materially increases the necessity for this by debilitating the elaborating and expellent frame, and making labour complications more frequent. Child-evolution and parturition are easier, safer and quicker in Savagedom than in civilized life. Among civilized peoples the working and lower orders enjoy a like advantage over the more delicate aristocracy. In the East childbirth is usually attended with little difficulty and requires little or no aid (Gen. xxv. 17; xxxviii. 28; Ex. i. 19; 1 Sam. iv. 19-20). The only assistance required is usually the father and daughters. Midwives are only occasionally employed; so self-reliant are the women. These midwives testified to the truth of the above remarks, by certifying to the speedy, easy, and correspondingly painless labours among the Hebrew mothers. But watchful skill and wise guidance can often aid and materially hasten labour, especially by removing mechanico-physiological hindrances. And though in accordance with this and by God's especial grace the Hebrew women had easy and safe labours, proper and skilled aid was furnished, lest danger might happen suddenly, as it often does in labour. Two Hebrew midwives, namely Shiprah and Puah have immortalized themselves in Holy Writ by their God-fearing opposition (Ex. i. 17) to Pharoah's nefarious design to destroy by drowning all the new-born Hebrew males, thereby to prevent further national increase (Ex. i. 22). These widwives accordingly enjoyed the Divine blessing and aid, no doubt for their own sake and the Hebrew welfare: "God dealt well with the midwives, and the people waxed very mighty" (Ex. i. 20). These midwives were made the instruments of God's providence in aiding the development of the Hebrew nation by their professional skill. The first chapter of Genesis is thus obstetrically interesting by shewing that the Hebrews had their own specially trained and heaven-approved midwives; and that though these answered Pharoah evasively, there must have been truth in their assertion that the Hebrew women had easier and speedier labours than the more

effeminate Hebrew women of that day, doubtless of more delicate mould, and testifying to the law that civilization had then as it now has its obstetrical drawbacks; and increases both the pain and the danger of parturition and child-evolution.

7. But the Jehovistic interest in child-evolution did not end here. He knew the importance and dangers of the entire process of reproduction, especially of its final stage, childbirth. The danger to the child-bearers' health and life were not yet over with the full development of the intra-uterine infant. God legislated still further in the interests of both mother and child; and supplemented all He had yet done by giving formulated rules for the subsequent process of recuperation after the birth, to facilitate convalescence, and especially uterine involution; a most critical period, because fraught with imminent and great dangers to the mother that require special hygienic care for their avoidance. Jehovah therefore not only ordained but codified certain rules for the parturient convalescent. These involved:—

a For a male child typical uncleanness for seven days. This implied social and tent isolation or "days of separation for her infirmity" (Lev. xii. 2); the first and by far the most critical part of her convalescence. After this "she shall then continue in the blood of her purification thirty-three days" (Lev. xii. 4); thus making a total of forty days. During this period of daily decreasing danger, and progressive uterine involution, healing, purification, and gradual return to her original normal condition of body and health she had to "touch no hallowed thing nor come into the sanctuary" (Lev. xii. 4). All Tabernacle worship, sacrifice and assembling with others were thus forbidden. This marked the new mother as ceremonially unclean and also physically and physiologically impure in the eyes of the God of perfect purity (Job. xxv. 5; Lev. xi. 45).

b For a female child the prescribed isolation was exactly double, namely fourteen days for the "days of her separation" (Lev. xii. 5) and sixty-six days for the days of her "purifying" (Lev. xii. 5): making a total isolation of 80 days.

After these periods in both cases, physiological cure being accomplished, certain prescribed sacrifices were followed by cleansings (Lev. xii. 6-8). During this period as a whole, though no mention is made of reporting to the Priest, this was doubtless understood and followed as an unwritten law; no evasion of this part of the Sinaitic code being permitted any more than with other rules. For the Priest alone could prescribe and enforce the law, including the required isolation, purification, offering; and pronounce the woman ceremonially and therefore physiologically and medically "clean." Moreover, as with reporting, no allusion is made to physical cleanliness or washings, except at the end of the term; although this is one of the most important factors during this episode all through, but especially at and after parturition. This apparent omission doubtless arises from this, that ablution and cleansing were so obviously necessary and so frequently followed as to be unnecessary to codify. But this would involve both perfect body ablution and garment washing. A popular mistake is apt to be made regarding "the days of her purification." For this implies not only the ceremonial or typical cleansing of the law; but also the physiological uterine depuration that follows parturition; a process that necessitates and ought to be accompanied by the greater dry and wet cleansings which innate laziness, dirty habits, or indifference might cause to be neglected; thereby inviting other diseases, either in the individual or in others, thus making it unwise to "come near" the woman during that period. The washings and cleansings shewed and inculcated the comfort and the health that accompanied and followed these sanitary practices. All women, even in that early epoch of the race, decidedly not a period of savagedom or utter ignorance, although one of decided descent rather than ascent, must have known the great importance of the utmost cleanliness at and after this crisis of life; during which, then as now, some individuals would require more frequent attention to ablution and general hygiene than others, according to varying personal peculiarities and requirements; to keep the body sweet, clean, comfortable, and in the proper recuperative groove to ensure perfect and permanent recovery, and remove all chance of self-inflicted disease, or ailments resulting from infection or contagion derived from others. This part of the Mosaic law of childbirth is not only cleanly and sanitary but also sanatory, as the complete rest, purity and isolation are recuperative and give time for thorough local involution, absorption and decrease of parts, and restoration of uterine and ovarian function before return to work and the ordinary duties and functions of married life, household and otherwise. For at this period the secretions are excretory, de-

purative, therefore poisonous *per se*, dangerous, and if retained often disease-inducing. They are thus to be wholly got rid of, and at once; especially as they are apt to putrify, become re-absorbed, to invite and form a nidus for the introduction and colonization of certain of the various disease-making bacteric germs, some of great potency and danger to life. Are these matters, on which such stress was laid by the Divine Hebrew law in early times sufficiently attended to now, especially by Gentile races? For to this lack of cleanliness, and especially to a too speedy return to ordinary life and its obligations may unquestionably be traced much feminine ill-health, debility and disease: with the obvious secondary results of these on the health, viability, and longevity of the offspring that derives its initial nourishment from the mother's breast and blood. The large proportion of parturients to the total world-population, and the frequent repetition of these physiological processes of pregnancy and childbirth, make these laws of cleanliness, isolation, rest, &c., inculcated by the Mosaic code of great world-wide and permanent value.

As a rule, owing to the generally smaller size of the child, especially its head, female births are usually quicker than male. And the doubling of the isolation and the sacrifices in the case of a female child (Lev. xii. 5) is only to be explained on typical and not on hygienic grounds. These are best perhaps given in the words of St. Paul, though not specially evoked for this point, but applied in a totally different connection. And they are of a twofold nature: *first*, Man was first formed, and has been given dominion over the woman: *second*, woman was first beguiled in Eden, then beguiled Man, and thus had the heavier share in the first sin and its curse (Gen. iii. 16; 1 Tim. ii. 14). The Divinity Himself assigns each sex and individual their place in creation; and doubled the probation for the birth of a female in accordance therewith, making it typically punitive. This view is strengthened by the laws subsequently made for the sons. The eldest was, unlike the daughters, devoted to God and the Priest of the family until the appointment of the Levites, though redeemable by an offering (Ex. xiii. 13; Numb. xviii. 15; Luke ii. 22). He, too, had a double portion of the estate and pre-eminence and authority over younger sons (Deut. xxi. 17; Gen. xxv. 31; xlix. 3; 1 Chron. v. 12; Jud. xi. 27). Until five years of age the sons were in the care of the women; after that in the father's charge, while they were instructed in all the art and duties of life and the law of Moses, including the hygienic (Deut. vi. 20-25; xi. 19). Whereas the daughters were ever subordinate, and rarely went out except for a specific purpose. When there were no sons the inheritance then passed to the daughters; who were forbidden to marry out of their

father's tribe and thus scatter the birthright (Numb. xxvii. 18; xxxvi. 2-8) from their own tribe. The children devoted by special vow to God were males: *e.g.*, Samuel; not daughters: to be brought up in a school or place of education near the Tabernacle or temple (1 Sam. i. 24-28). The authority given and inculcated on the Hebrew parents by law and by social observance was great; as was inherent reverence for them. This was especially marked for the father. Disobedience, striking, or reviling parents were liable to capital punishment, and not left to the independent will of the parents themselves.

Jehovah thus took the "labours" as well as the pregnancies of the Hebrews under His special care, by making them speedy, easy and normal to the mothers and lessening the danger to the new arrivals. This high health, general and reproductive, brought with it an element of danger; except this was met and forestalled speedily. This lay in the uterine involution and the accompanying discharges. In few conditions is the necessity for cleanliness more required, to promote the ultimate desired end, namely a speedy and perfect recovery. Here, although the Holy Scriptures make no mention of washings of the clothing or bathing the person, because needless: reason and custom alike made it unnecessary to legislate specially on this point. This was left to the common-sense and discretion of the individual and her attendants. The entire course of labour and recovery among the early Hebrews thus ensured three very prominent factors in the modern hygiene of obstetrics; namely, 1st, isolation; and notification to the Priest in compliance with law; though Priestly inspection would obviously be unnecessary: 2nd, rest, mental, bodily, and social; so especially necessary all through this period: 3rd, opportunities for cleanliness; equally imperative all through but especially during the first third or half of the isolation. In these hygienic points the Hebrew obstetric hygiene, ordained over 3,000 years ago, is clearly anticipative of our modern methods.

Medical criticism of these Mosaic laws and their requirements shews that they were not purely typical but also and very largely sanitary: and meant to preserve the health and prevent disease in the mothers, and aid the development of a healthy race, and its hereditary continuance. The typical aim was intended, 1st, to mark the Divine hand in this momentous event, childbirth, and associate it with His Divine blessing and aid: whereas the 2nd, the underlying hygienic object was meant to ensure a good and speedy recovery by a not too early return to social life. The mother had thus time for quiet thought and Godward thankfulness; as well as for sanitary cleanliness until perfectly recovered. Uterine healing would be more or less complete; involution well advanced; the lochia ceased, and with

it the danger of disease from bacteric poisoning gone or reduced to a minimum. As for other matters, spoken of elsewhere, the Divinity ordained and conjoined both objects, the typical and the hygienic; and thereby once more suggestively inculcated the great lessons of the importance both of complete rest of mind and body and of perfect physiological cleanliness during this and other very frequent female conditions, as well as during every variety of disease. The hand of Divinity in the cases of Sarah, Rebecca, and Rachel, and also the mothers of the Wanderings, associates the religious element with all that happens; especially with this, one of the most momentous events in the life of every human being, that of its birth. It taught the Hebrews, as it ought us, to see God's hand in every act and circumstance in life, even in these physiological conditions: and the diseases that may spring from them by neglect of the hygienic laws appertaining to this epoch. The subsequent rule both for male and female children, which compelled the mother to offer a burnt and also a sin offering for atonement ere she was formally cleansed from the issue of her blood, was however clearly and purely typical (Lev. i. 8). This offering of purification consisted of a lamb as a burnt offering and either a pigeon or turtle dove as a sin offering. Or, if poor, two doves or two pigeons; one being for a sin and the other for a burnt offering (Lev. xii. 1-8; Luke ii. 22). This reminded the Hebrews of their humanity, its weakness, and their dependence on Him both in birth and death: and thus their first appearance on earth as well as their final exit therefrom were both marked by a stated pollution and uncleanness (Lev. xxii. 4; Lev. xii.). Our modern sacrifice should be a prayer of gratitude.

The Holy Scriptures in this, as in many other hygienic points, clearly anticipates secular hygiene, not by ordaining the use of chemical antiseptics and disinfectants, but rather by inculcating and enforcing something far better and more philosophical to obviate the necessity for this by avoiding it, and rather inculcating the highest degree of cleanliness, both local and general, in this as in all else, as the best mode of forestalling infection and contagion by anticipating its advent. It is clearly better, wiser and more philosophic to prevent than to cure these obnoxious ailments: to give the bacteria no soil and no chance of settlement in preference to having them to destroy and also the disease they had originated by killing the germs in the blood and tissues. Briefly summed up, the Hebrew hygienic requirements to promote recovery after childbirth included:—

a Rest, and quiet of body and mind.

b Cleanliness of body and clothing. Many diseases arise from inattention to these and a too early return to household duties and work, and, above all, to lack of

cleanliness. The cleanliness of this period cannot be excessive. Many an ailment in after-life is traceable to direct or indirect lack of these factors, especially this last, in its fullest and widest application.

c Isolation, social and marital, to prevent possible disease in others.

The Mosaic law during and after childbirth thus corresponds closely with the rules followed at the present day by secular minds. For modern methods do not overthrow the Sinaitic suggestions and commands. And the latter clearly endorse modern conclusions and practice. The Biblical hygiene of obstetrics and the post-parturient period, is an endorsement of the best rules of modern times. And there can be little doubt they are far in advance of the practice among the not over cleanly of the working classes and the lower orders, even in so-called civilized regions. These Hebrew laws were compulsory on all: whereas our ideas consist of voluntary obedience, which leads to their frequent evasion, where so many possess neither the knowledge nor the instinct for cleanliness even during this important and critical event. The Hebrews were wisely taught the reason of the rules they had to follow. Should not we popularize hygiene more?

Jehovah thus manifested a special care for the descendants of Abraham by interesting Himself deeply in the hygiene of child-bearing and child-birth, during the entire process of reproduction from the very beginning to the very end; and even before the conception of the new being to the full completion of the process, and even on to the thorough restoration of the mother to her original and normal condition; and He legislated accordingly.

These Jehovistic laws for the promotion of Hebrew child-bearing and childbirth had a four-fold aim:—

1st. To give the Hebrew women strong vigorous bodies; healthy reproductive systems; fruitful wombs; prosperous pregnancies; rapid, easy, safe, normal, uncomplicated labours; and a speedy and full recovery. As with their general health, so with their pregnancies and child-bearing, the Hebrew women enjoyed unfailing prosperity.

2nd. For the children a minimum amount of risk during their evolution and birth; a vigorous constitution; high health and great virility; and strong inherent capability of hereditarily transmitting these onward.

3rd. For the Hebrew nation a numerous progeny; a rapid development; and a long-lived, fruitful and dominant race of men and women, well adapted for the beneficent Jehovistic purposes.

4th. For humanity at large they brought indirect blessings of incalculable value: as it was through the race thus primarily benefited, legislated, cared for, and developed that the entire human species were to be benefited: and to receive not only the Holy Scriptures with its incomparable and unique histories; manifold information; its "Mosaic" code; and, above all, the Saviour and knowledge of the plan of salvation; and the innumerable direct and indirect blessings that flow therefrom.

To satisfactorily effect all these the Hebrews were commanded to strictly obey His laws (Deut. viii. 4). This command necessarily included those relating to childbirth and child-evolution. If they did, then "blessed shall be the fruit of thy body" (Deut. xxviii. 4-11). Whereas if they disobeyed or evaded, this would be cursed (Deut. xxviii. 18): so that in this as in other conditions of life, it was shewn that it is Jehovah who "kills and makes alive, wounds and heals" (Deut. xxxii. 39) or permits His laws of Nature to be broken and punishment inflicted.

It thus appears that this department of the Divine hygiene was as carefully thought out, legislated for, codified; and is as wise, far-seeing, comprehensive, deep and broad as all the rest. Clearly there is nothing puerile, obsolete, antiquated, utopian, or unpractical about these precepts for childbirth, any more than there is in any other of the Divine laws. Like these, so those for child-evolution go to the very root of the matter; and follow the subject out to its ultimate and deepest issues.

These hints regarding the hygiene of Hebrew childbirth are clearly direct and indirect precepts of inestimable value for modern female conduct before, during and after pregnancy; hints of which many, perhaps the majority of the masses are entirely ignorant, even at the present day. They are therefore items of Divine instruction for the actual and prospective mothers for all time to endeavour to attain and maintain, both for their own sake and that of their progeny: and shew:—

1st. That the highest female health and vigour are the best for maternity; a healthy body as a rule implying a vigorous reproductive system; the evolution of healthy progeny; a strong muscular and uterine system for labour; and normal vis medicatrix for recovery.

2nd. That local and general vigour in the male is equally necessary for sure impregnation and the begetting of a healthy offspring.

3rd. That the greatest hygienic care is necessary during body convalescence and uterine involution and heal-

ing: especially *a*, physiological rest, local and general, until complete recovery; *b*, perfect and continued cleanliness throughout; *c*, isolation to ensure these.

4th. That the hygiene of the pregnant period is not a matter of indifference at any time or in any race or age; but should be of the best attainable kind, to ensure both the maternal and infant health and life, and their perpetuity.

5th. That as Jehovah still has a supreme and practical interest in this world's affairs and in the human race generally, may not child-bearing and childbirth, mothers and children, be similarly prayed for by God-fearing, God-serving people; to attain God's blessing, care and aid, as were these patriarchal Hebrew mothers.

6th. These Hebrew laws that form an integral part of the far-reaching Mosaic code are not only fully endorsed by modern practice; but also long anticipative of it.

For the Holy Bible was the first to point out and practically pioneer certain most important and fundamental facts regarding animal and human evolution of species. Thus:—

a The most philosophical way of biologically developing a race; namely, by judicious selection of the initial pair. Modern times fully recognise the importance of such a selection and manipulation of stock for the breeding of horses, cattle, sheep, and domestic animals generally. But the Holy Scriptures shew that this was practised as early as the days of Jacob (Gen. xxx. 32-42). To Divine direction we trace the application of this to the human species in the philosophic care taken for the evolution of the Hebrew race. With us, in modern times, the latter idea is merely discussed and not yet fixed or followed for other races.

b The Holy Scriptures give the earliest hints regarding the mode of evolving children on sanitary methods; namely, by aiding the child-bearing mothers and giving them a healthy environment, which increased their individual health during this critical period and thus enabled them to evolve healthy offspring.

c The Bible was also the first to point out the necessity for a special hygiene and the highest sanitary care both during and after childbirth, to enable the mother to regain and maintain health, and thus give her offspring healthy nourishment; and recover fast and well from her debilitating obstetric condition.

CHAPTER IV

PERIODS

"But is clean every whit" (John xiii. 10; 2 Cor. vii. 1).

The female uterus or womb has not one but several exceedingly important functions to perform; thus:—

1st. It is a home and shelter for the incarcerated embryo infant.

2nd. It is the infant's commissariat to feed and enable it to grow and develop after Nature's hereditary model, by aid of the placenta or afterbirth.

3rd. It is the infant's chief expulsive force at childbirth.

4th. It also acts as a most important secretory and excretory organ for the monthly "menses," or "periods," or "flowers," during the "unwell," or "poorly" time, common to all females during the era of adult, sexual, or reproductive life, which usually begins when the child develops into the woman at from 12 to 16; and lasts till the "menopause" or "cessation" between 40 to 50 or 55; the climacteric period.

Of these functions the first three are mainly connected with the fœtus. The fourth is maternal. The latter function is physiological and healthy; and connected closely with the "ovulation" of the ovaries. The continuance and amount of the discharge vary with individuals. Some women "flow" more or longer; others less and shorter. But the discharge is essentially excretory and depurative both for the body and the blood. Though often treated with indifference, as is childbirth, equally physiological, the periods are on the borderland of the pathological, and apt to merge into actual disease, unless kept within the bounds of health by individual hygienic care and forethought. But when, from any cause, such as overexertion, a chill, &c., this critical flow is diminished or stopped, and the fluid thus retained in the blood, or is re-absorbed into it, it acts, *first* as a poison, and *second* as a soil for the lodgement and cultivation of disease germs, which are apt to migrate elsewhere and functionally disturb, irritate, or congest other important organs, and so induce disease. Moreover, at this period

the female frame is in a critical condition, delicate, revolutionized, and apt to succumb more readily than in health to insanitary influences, always near us, and thus to fall a prey to local or general disease. Some women are not, but most are, specially upset at this particular epoch. Ailing and weakly ones are often tenfold more so; the period apparently not aiding but complicating the disease. These are facts that all women should know.

Clearly therefore this occurrence requires a different, more careful, and special hygiene than does the inter-periodic life, to promote the process; including:—

a Rest and quiet of body and mind, local and general, in the recumbent position; and the avoidance of excitement.

b Isolation, especially marital.

c Excessive cleanliness, of the body and parts; necessary at all times, but especially now.

In addition to these especial care of the function is necessary at two periods; critical ones in many instances. These are:—

1st. At its inception or advent, when it is apt to be imperfect, retarded or complicated.

2nd. Towards its close, the menopause; when it is apt to be excessive and complicated with certain dangerous diseases; *e.g.*, ovarian and uterine tumours, simple or malignant, &c.

Catastrophes like these at both episodes may often be avoided or lessened by especial hygienic care.

Biblical Legislation Regarding the Periods

Does the Bible say anything regarding this: and, if so, does what it says agree with or differ from modern secular ideas? This event is frequently mentioned in Holy Scripture; and is distinctly legislated for in God's Sinaitic law. Jehovah terms it "sick of her flowers" (Lev. xv. 33); or an "issue of blood" (Lev. xv. 19). And the condition is clearly differentiated from an "issue" proper, as the two are separately mentioned in Lev. xv. 32-33. The Holy Scriptures legislate both for the normal, healthy, physiological function (Lev. xv. 19; Lev. xv. 33): and also when this becomes pathological, profuse and dangerous, and merges into an "issue of blood" (Lev. xv. 25), to be spoken of presently. What we now term the "periods" is evidently what is spoken of in Lev. xv. 19. And the law inculcates that as the female, single or married, is legally, typically, and hygienically "unclean" she had to be *isolated* for seven days.

This implied social and marital separation in tent and camp. To prevent or lessen disobedience and enforce strict obedience, disregard of this law was followed by certain minor penalties; thus:—

a Whatever touched the woman was deemed "unclean" also till even (Lev. xv. 19).

b Everything she lay or sat on became unclean. In this case the culprit had to wash his or her clothes, bathe in water and be "unclean" till even.

c Whoever touched the woman's bed became unclean till even and had to wash his clothes and bathe himself in water.

d Whoever touched anything on which she had sat was unclean till even.

e The man who had intercourse with her then became unclean for seven days, as did their bed.

f Atonement or sacrifice was made on the 15th day of the condition as a sin and burnt offering. This consisted of two turtle doves, or two young pigeons.

All this was partly typical, and meant to inculcate the close relation that exists between a clean body and a clean heart and soul: as well as the necessity for and the benefits of both kinds of purity. But it was also and very largely sanitary or hygienic; and either included or implied the following health-preserving precautions:—

1. Report to the Priest-physician, either direct or by deputy; as he had subsequently to sacrifice for her.
2. Inspection would doubtless be dispensed with; this being a delicate matter.
3. Separation and remission of her duties and functions, social, marital, and Tabernacular (Lev. xv. 31) for 15 days; namely, the first seven as "unclean" (Lev. xv. 19); then seven days more, after being "cleaned" (Lev. xv. 28), and one for sacrifice (Lev. xv. 29). This isolation clearly includes rest of body and mind; and the much-desired local and general quiet.
4. Cleanliness. No mention is made of this; evidently because it was implied and so universally followed as to be unnecessary: both of the person, parts, clothing, &c.

These are admirable rules, impossible to improve upon, and as applicable to modern as to ancient times. The final sacrifices are of course annulled, and merely part of the Mosaic ritual. Nor can such rules be deemed obsolete, antiquated or peculiar, but regarded as highly sensible, necessary, and sanitary for all time. Nor is our modern conduct or our professional advice regarding this critical and important event much, if at all,

different from what the Divinity advises and enjoins on the Hebrews. Clearly therefore Bible advice of over 3,000 years ago is not overturned by modern ideas: whereas the latter are corroborated and enforced by the former.

Two facts are obvious; namely:—

1st. That many women are entirely ignorant of these truths; which are only such as all females ought to know; because of more importance than either learning or accomplishments.

2nd. Knowledge of them should be imparted; and thereby much serious female disease avoided, that is due solely to ignorance of danger and negligence of necessary sanitation during this life cycle.

How many of a large, important and dangerous class of ailments might be avoided by increased care of this function after the manner laid down both plainly and inferentially by Jehovah, can only be guessed at by medical men. These rules comprise not only excessive care of the condition to promote the general health and prevent disease in the implicated female; but they also include great preservative care of these for other persons. Care during this female condition leads not only to her own personal salubrity; but also regards the welfare of others, especially those of closest relationship, such as husband and children, but also to the health and preservation of property and belongings. These facts and deductions are strictly and largely founded on a rational hygienic basis. And they receive corroboration from customs long prevalent in widely separated parts of the world; but especially in our own country. Thus, even at the present day, women in Wiltshire, Somersetshire, Dorsetshire, and Devonshire, as well as other parts of England, refrain from butter-making and also meat-salting during certain feminine occasions, on the ground that both butter and meat are apt to become tainted. So, too, Portuguese women at these particular times rarely enter a vineyard or an oil mill, or handle meat then: and if they do so are hunted out both by their men and women fellow-servants, in the belief that their presence may taint the oil, wine, or meat. For the same reason servants ask their mistresses to cut and handle all the animal food required. For a like reason the Chinese and Japanese forbid females to gather or handle tea then. Pliny describes the blighting of buds, rusting of steel, &c., as ensuing from the same cause. And though some aver that all this is fanciful and owes its origin to some forgotten religious usage, and probably the Mosaic law, that a woman is unclean then and that "whatever the unclean person touches becomes unclean":

still, altogether apart from this corroboration, modern research is slowly proving that the Divine commands regarding this matter are based, as we would expect them to be, on the soundest physiological and hygienic principles: because they indicate that excretions like this, which in themselves are sanitary as regards the individual, may become unhygienic, not only to the person if not removed, but also to others, both directly and indirectly; for this is the reason and object of the law regarding the male sex (Lev. xv. 24), as disease may undoubtedly result thus: a sequel which it is better to avoid, and which it is evidently the aim of the Mosaic code to prevent. It ought clearly to be our aim to give women of all ranks and countries then a proper, well considered, sanitary environment, and one calculated to assist and permit Nature to perform the important function satisfactorily. For if the distinctive catamenial emanations and odour detrimentally affects meat and other lifeless animal and vegetable products thus; much more often and deeply are they likely to influence for evil the far more delicate and sensitive living human body, by depressing its vitality and thus making it more prone to the assault of pathological conditions ever ready to assail us, especially when weak. Jehovah knew well that as with childbirth so with this, the other most frequent episode in female life; how much disease arises from neglect of ordinary, simple sanitary precautions: and legislated accordingly by making the laws compulsory; knowing well our human weaknesses, laziness, obstinacy, and self-will towards all measures which entail trouble. Here, again, also the Holy Scriptures were the first to point out to modern times the cleansing, purifying, disinfecting, and hygienic individual and household benefits of frequent and copious washings with water, which act mainly by diluting, dispersing, oxidising and decomposing effete matters and obnoxious odours, both solid, liquid and gaseous: and to point out similar qualities in the atmospheric air which acts even more quickly although in similar fashion, by dilution, dispersal, and chemical de-oxidation of the peccant matters. And as elsewhere stated it disclosed similar hygienic properties latent in common mould or earth, which, though less potent as a diluent and disperser, is doubtless more powerful as a chemical decomposer than either. Indeed the prominence of these three cheap, universal, easily procured and potent agencies, viz., air, water, and earth, was as necessary and prominent a feature in the hygiene of disease as in that of health. In the condition now under review pure air and clean water held the most prominent place; it will be readily understood why.

The Jehovistic law for the female "flowers" thus consists of

a series of sanitary inculcations necessary and fitted for all time and every race, and not for the early Hebrews only or for their era. And it antedates our modern customs and findings by many centuries. Written and codified by the God of purity they may be safely studied by humanity and carefully followed by the female sex. For He knows the frame that He devised: and to the pure human mind all things are pure. They are freely and fully discussed in the Holy Scriptures because they are an important and necessary item in the personal sanitary knowledge that all women ought to possess or strive to attain. For do not all and everyone of the things that are "revealed" belong to us and to our children (Deut. xxix. 29). These Mosaic rules were imperative, while ours are optional and doubtless therefore often evaded; although in wise eyes only all the more compulsory. The sacrificial atonements of the Hebrew ritual are of course abrogated. The abnormal prolongation or excess of the "flowers," named menorrhagia; and their non-intermission and constancy, named metorrhagia, being morbific and pathological; are spoken of under the head of "issues," being so classed in the Pentateuch (Lev. xv.).

CHAPTER V

ISSUES

"Do we make void the law" (Rom. iii. 31).

In modern times the term Issue is applied to an ulcer or sinus made and kept open to cure or prevent some disease. The Bible term is different; and is evidently a generic name implying different discharges from the healthy or the diseased human body. The latter has thus a different and wider significance and means a running discharge (Lev. xv. 2) from some part or organ. It is with the latter medical and not with the former surgical condition that we have here to do.

These secretions or rather excretions are curable or incurable discharges of various kinds and degrees, acute, sub-acute, or chronic, from different parts of the body, usually one or other of the normal outlets. They vary in kind and may be serous or watery, mucoid, purulent, sero-purulent, muco-purulent, sanguineous, or sero-sanguineous, &c. And they might flow from the ears, eyes, nostrils, throat, lungs, bowels, or genito-urinary tract. We differentiate them better now and give them more accurate names than in Bible times. Their cause varies, and may be weakness, congestion, inflammation, tumours, &c., or some specific disease. Their presence invariably indicates some abnormal internal condition of which the discharge is merely the outward expression. It is this that must be attended to and if possible cured. The methods employed for this and for relieving or curing their cause, are out of the present theme. If not relieved or stayed serious consequences may ensue, as they are usually debilitating; and, again, the disease from which they spring may become incurable: thus increasing the disaster.

These discharges, brief or acute, long or chronic, curable or incurable, alike are clearly abnormal and troublesome. Even the laity recognise this; and feel that they are pathological and either a disease or a symptom of it. With their active treatment we have here nothing to do: beyond pointing out the fact that in addition to this they one and all require a special hygiene and sanitary surroundings. The chief hygienic require-

ments of one and all of these different kinds of issues peculiar to the human body are more or less identical and imperative; and include:—

1st. Isolation and the avoidance of all mental, bodily and local excitement, mental, social, marital, physical; because these are apt to increase the flow, prolong the condition, and prevent the cure.

2nd. Rest; to quiet the pathological state, and lessen the disease; which work, activity, and often the upright posture increases and prolongs.

3rd. Cleanliness of body and clothing, special and continued; especially with water to wash away discharges as they flow, prevent them from accumulating or being re-absorbed, and perchance causing other diseases in the individual person, or in others. Cleanliness is one of the chief items in the Hygiene of Issues, because these excretions are very apt to putrefy, irritate, and inflame the parts over which they run: as well as to form a suitable soil for the many different kinds of morbific bacteria, for example, of erysipelas, gangrene, &c., the advent of which is equivalent to grafting a new and worse disease on the old. Perfect cleanliness in these conditions is absolutely necessary for comfort, safety and health. Over-cleanliness is impossible. The excretions should be removed as fast as they are formed to prevent auto-infection. In phthisis one lung infects its fellow thus. Eczema, &c., spreads similarly, even although the infecting matter is microscopic in quantity. The cleanliness should extend to the clothing, bedding, furniture, vessels, woodwork, saddles, &c., &c., &c., all apt to be encrusted by pollutions of this kind. Too much care cannot possibly be taken in such cases. No fact in hygiene is better established than this. For where such discharges are present, air, water, and earth are all apt to be contaminated either with the dried or moist excretions, and to be dangerous to humanity.

The Biblical Hygiene of Issuses

If the Holy Scriptures speaks of these oft intractable and annoying ailments, and especially regarding their hygienic treatment and prevention, it will be interesting to know whether this agrees with or differs from our modern ideas. Issues are frequently incidentally mentioned in the Holy Bible: but chiefly in the Pentateuch, where they are medically legislated

for in the hygienic section of the Sinaitic law; that pays considerable attention to this class of ailments, and gives many sanitary rules, which may be received as an index of their importance, both as regards the diseases themselves and their sanitation in the Divine eyes (Lev. xv. 2). The Mosaic rules were comprehensive and equally applicable in or from whatever part or passage they issued from. In the Pentateuch the term issue was evidently a generic one that includes several diseases or forms of the same disease in different parts (Lev. xv. 33). They are Biblically classed as male and female issues; both kinds being separately legislated for. Moreover, all the varieties spoken of were clearly true diseases; abnormal or pathological conditions, either of primary or secondary origin; and not mere physiological conditions, like childbirth, the flowers, &c. Moreover, in both sexes these Bible "issues" are evidently wholly distinct from modern issues, which are voluntarily induced and remedial: and are really more or less profuse and variously caused discharges from the different male and female orifices and passages of a serous, mucoid, purulent, sanguineous, or mixed nature. Bible issues are therefore both of medical, surgical, and gynæcological import.

Female Issues, is evidently a term applied in the Holy Scriptures to different diseases and conditions. Thus it may mean:—

1st. Either the ordinary periods or female "flowers," termed an issue, but separated here for obvious reasons (Lev. xv. 14; xv. 33).

2nd. An issue of blood, either the periods pathologically prolonged (Lev. xv. 19) or a disease quite distinct from the periods (Lev. xv. 33): as these are mentioned separately (Lev. xv. 32-33); and also separately legislated for: and this may include:—

a Menorrhagia, a prolongation of the periods, due to some uterine, ovarian, or other pathological cause; or—

b Metorrhagia, a continuous flow of this kind for many months or years (Lev. xv. 25; Mat. ix. 20; Mark v. 25; Luke viii. 43), and from the same or similar causes. These are evidently both legislated for.

3rd. The Biblical female issue may also include lencorrhœa or the whites, from simple vulvitis, vaginitis, or endometritis.

4th. It may also include the gonorrhœal form of discharge in its different stages of intensity, and results and localities involved.

5th. Lastly, it may also include serous, mucoid, or purulent

discharges from other orifices; the anus, ears, eyes, nose, mouth, &c.

But the Holy Scriptures evidently includes the hygiene of all of these possible conditions under one heading; viz., the issue or flux of blood; as it evidently deems the hygiene for the more normal, sanguineous form, applicable to the other varieties. Let it be remembered that it is evidently the severer forms of blood issue, functional or organic, now named, namely menorrhagia or meteorhagia, that is alluded to and taken by the Divine Sanitarian as the type of pathological issues; and as illustrative of the mode of dealing with them all, great and small, acute and chronic, functional and organic (Lev. xv. 25). "If a woman have an issue of her blood many days out of the time of her separation, or if it run beyond the time of her separation (for the period) all the days of the issue of her uncleanness shall be as the days of her separation she shall be unclean" (Lev. xvi. 25). That is she was altogether isolated or "separated" in tent and camp, and underwent social and marital isolation or separation, which of course lasted till recovery, or became perpetual if the ailment proved incurable. It was possible for her to make other things and persons "unclean," and thus to inculcate these in penalties: thus—

1st. Whoever touched a woman afflicted with an issue became defiled and "unclean" till even (Lev. xv. 19).

2nd. Every bed on which she lay or seat on which she sat became "unclean," and had to be shunned until the typical uncleanness was removed (Lev. xv. 20).

3rd. Whoever touched these things or her became unclean; and had to wash his clothes, bathe himself with water and be unclean till even (Lev. xv. 23).

4th. The male who lay with her, as well as their bed-clothing, &c., became unclean for seven days. This implied isolation in the camp, and extra cleanliness; penalties that would obviously beget a desire as well as care to avoid a repetition of the ordeal. This law was evidently meant as the rule for the usual female periods; as well as for their diseased aggravation and prolongations, menorrhagia and metorrhagia (Lev. xv. 25-29).

5th. If the woman recovered and was medically cleansed of her issue (Lev. xv. 28) she still remained ceremonially unclean; and was required to number to herself seven days; that is to remain isolated so long. This gave time for perfect washing and purification of her body, clothing, &c. The remarks made under the heading of the "periods" regarding the bodily odours and emanations are also very apposite regarding

issues; as these are still more likely to be greater in the latter condition, therefore more odoriferous and more dangerous to health and life. If the normal discharge from a woman tends to induce putrefactive processes in other people or in a household, camp or city; and to render food, &c., obnoxious or unhealthy, how much more likely would the discharge and odours of disease issues be to do this, for example, in milk, wine, honey, manna, &c., &c.? Not till the expiry of this term with its purifications, was the woman deemed "clean." After this there followed an expiatory sin and burnt offering; namely, two turtle doves or two young pigeons by the Priest as "atonement before the Lord for the issue of her uncleanness" (Lev. xv. 30).

This combination of rules implies the strict compulsory observance of certain well-known prominent, though simple, sanitary factors; viz.:—

a A primary obligatory report to the Priest (Lev. xv. 19), who had to enforce the law as to isolation, sacrifice, &c.: with a second report when cured or "cleansed of her issue."

b A personal and special inspection by the Priest-physician would not be in many, perhaps most, cases necessary: especially with female complaints.

c The ceremonial "uncleanness" was a wise way of enforcing isolation by typically allying the bodily with the spiritual uncleanness, and the sanitary factors these imposed, cleanliness, purity, rest, &c. Care of the body is as necessary for God's service as care of the soul, and is a part of that service. Both are required by Him.

d Isolation for seven days, not merely in the afflicteds' tent but out of the camp, and repeated till cured, was compulsory (Lev. xv. 19). This ex-camp isolation was the law in three cases only, namely in cases of issue, defilement by the dead, and leprosy (Numb. v. 2-3). Isolation like this for physical ailments indicated the serious nature of the disease and also its not unfrequent contagiousness and the great care taken to prevent this when differentiation of disease was not so complete as now. "Both male and female shall ye put them out, without the camp shall ye put them" Numb. v. 3). And the great reason is given "that they defile not their camps in the midst whereof I dwell" (Numb. v. 2-3) by bodily as well as spiritual impurity. "And the Children of Israel did so, and put them out without the camp" (Numb. v. 4), proving that "issues"

must have prevailed among them. This isolation from home, camp, and tabernacle would no doubt be felt both socially, personally and spiritually, both vexatious and troublesome, especially as it was public. But it was educational and preventive; inculcative both of obedience and hygiene. Once incurred they would try hard to avoid a repetition of the ordeal by avoiding its cause. If the issue, whatever its nature or locality, was not cured at the end of seven days, the isolation was renewed as often as necessary. Intractable cases would make this long. Incurable cases would make the isolation permanent. The isolation was thus largely hygienic, and both curative, of existing ailment, and preventive of more disease. These laws were incumbent on all; leaders, Priests and High Priests, wives, and wives of the laity. None were exempt (Lev. xxii. 4).

Male Issues. As in the female, this is probably a generic term that included several or mayhap many diseases, characterized chiefly by a discharge or "running" of serous, mucoid, purulent, sanguineous, or mixed matter. It might therefore have included:—

1. Cases of simple urethritis (Lev. xv. 2); contracted from a female having either lencorrhœal or vaginal discharge.
2. Gonorrhœa and contagious, contracted from the female. The symptoms mentioned in Lev. xv. 28 were probably those of gonorrhœa benigna: and the plague "for Poer's sake," perhaps a syphilitic affection derived from the Moabites (Numb. xxv. 1, 8, 9; Deut. iv. 3; Josh. xxii. 17).
3. Or an anal discharge or bloody flux (Acts xxviii. 8).
4. Or an otorrhœal discharge from the ear; ophthalmic from the eyes, or tear ducts: or nasal, guttural, &c.

One and all of these are legislated for by the law found in the Mosaic code for a male running issue (Lev. xv. 1-15); whether this was great or small. When a man had developed an "issue" certain things happened or had to be done. Thus:—

1. He became ceremonially "unclean" till cured (Lev. xv. 13); this implied
2. Report to the Priest, who pointed out and taught the law of this subject.
3. Inspection by the Priest for verification and possibly treatment of the disease (Numb. v. 2).
4. Isolation. This was ex-camp, as for women; that is separation from friends, home work, camp, and tabernacle; and in length was at the discretion of the

Priest; who would scarcely banish out of the camp every trivial and benign discharge, but only the serious and contagious ones, such as cases 1 and 2. This measure was sanitarily wise, as it would aid the individuals cure by permitting care, quiet, and cleanliness; but also by preventing disease in others; as the isolation was both social and marital. Even benign discharges in women may create irritation and inflammatory ones in the male: and the reverse also holds good. The isolation affected other things and persons. Thus anyone who touched the bed of one (Lev. xv. 17) with an issue (Lev. xv. 5); or his seat (Lev. xv. 6) became unclean. So also did the bed itself (Lev. xv. 4); or vessel (Lev. xv. 12); or saddle (Lev. xv. 9); or anything else (Lev. xv. 6) of a person with an issue. So also anyone on whom the leper spat became unclean (Lev. xv. 8). These injunctions were sanitary, doubtless made because the issue might be scrofulus, cancerous, syphilitic, gonorrhœal, &c., and therefore communicable. The penalty for infringement on any of these points was that the culprit became ceremonially "unclean" till even, when he had to wash his body and clothes.

5. Cleanliness during isolation. The latter gave quiet, rest, and time, as well as opportunity and greater solitude for cleansing. Though cleanliness is never mentioned in the text it was clearly and inferentially implied, as it was superlatively necessary for the continued purity of the afflicted parts, person, clothing, &c. The necessity for and frequency of this doubtless varied with the nature of the disease, its intensity, abundance, and kind of discharge, benign or malignant and communicable. If the latter, this would be more frequent and careful. But all diseases accompanied by a discharge of effete and noxious matter require the enforcement of superlative cleanliness, both for comfort and cure, until the latter sequel is effected. This cleanliness, perhaps more than any other of the injunctions, was partly typical. But who can for a moment doubt that it was also and largely hygienic and preventive. The law was not for the laity alone and the notables; but extended to the Priests (Lev. xxii. 4). If any one of these had an issue or was a leper he was not only subject to the law of the laity but was forbidden to eat of the holy things until he was ceremonially clean (Lev. xxii. 44). This excessive cleanliness shews that the All-wise Sanitarian legislated for

the then undetected but fertile source of disease, the bacteric, and met it by the method of dispersal and perfect freedom from the poison-generating microbes. The Holy Scriptures do not say how long a man with an issue was to be deemed "unclean," and for a good reason; this was uncertain, as with female issues, and depended, as with these, on how long the disease lasted and its cure.

6. On recovery (Lev. xv. 15) the individual had to "number to himself seven days for his cleansing, wash his clothes, and bathe his flesh in running water" and had also to sacrifice (Lev. xv. 14-15). Washing is here made compulsory. Otherwise many might have neglected the grateful and devotional lesson it implied.

All of these injunctions, especially the isolation, cleanliness, and the sacrifices are undoubtedly largely typical: but they are also largely sanitary and utilitarian, because inculcative of cleanliness of the person and clothing, therefore preservative from infection. The reason for them as a whole is given, "Thus shall ye separate the Children of Israel from their uncleanness that they die not in their uncleanness when they defile my Tabernacle among them" (Lev. xv. 31). A severe penalty is thus implied for disobedience. The very closest obedience to God was thus taught in hygienic matters; and also the important fact that disobedience was punitive. The physical and social attention to cleanliness symbolized that which was moral and spiritual, and inculcated simultaneous purity of body and soul. God's laws in this are once more shewn to be broad, deep and far-seeing. The isolation to favour rest, quiet, cleanliness, marital separation, were all necessary to promote recovery. Cleanliness is a factor not specially mentioned during the period of isolation: nor is any allusion made as to the number of washings required. But these were doubtless implied and followed. Comfort alone would compel it. And its exercise would promote health. The injunction "he shall wash and be clean, as in this case" (Lev. xv. 13), though placed at the end of the Jehovistic delivery on the subject, does not alone imply that he is to do so when cured and before being ceremonially clean. It means that he is to wash and be clean all the time; as often and as much as is necessary during the entire illness. The Holy Scriptures inculcate perfect cleanliness in such matters to aid the healing process; to prevent auto or self-infection; and ultimately, perhaps, infection of others. The Bible is the first both to inculcate the imperative sanitary necessity for thorough cleanliness in disease; and to indicate that it is impossible to be too clean under such circumstances. Cleanliness by repeated water washings is the Scriptural favourite

mode of disinfecting: than which there can be no better. The same idea has been highly developed in the later modern medicine and surgery: excessive cleanliness, for example, during operations, both of the patient himself as well as his room, furniture, air, &c.; so that not one bacteric germ or microbe can find admission to the patient through spray-laden air, &c. We shall presently see how materially all this was forestalled by the Sinaitic hygiene, with its complete isolation in an aseptic atmosphere, and its repeated washings and cleansings with water. With the necessity for this idea and the great value of this law, all unbiassed minds will agree: as they also will in deciding that in modern times it is too little followed by the uncleanly, very much to their own detriment and that of others: to the prolongation of their own ailments, and the more frequent and ready transmitting it to others in the case of every one of the male and female diseases above mentioned, and named issues in the Holy Scriptures. Repeated and perfect cleanliness and washings are quite as necessary for these ailments in modern times. Biblical physical cleanliness fully implies this as part of the hygiene of disease and also in the usual physical conditions of health, especially those peculiar to females. Without this frequent and perfect ablution of diseased parts no Hebrew could or would have been "clean" in the sense the Bible intends. The physical cleanliness included the ceremonial purification.

The hygiene for the aid of male and female issues in the Holy Scriptures closely corresponded and were indeed identical, as we would naturally expect them to be; the mucous membranes in both correspond so closely. Some cases in both sexes would require more washing and more frequent repetition of this than others, according to the part and the nature of the pollution. These items were left to the private judgment of the ailing individual or that of his or her Priest-physician. Its object was to aid the cure by washing away infecting or irritant matters to prevent auto or self-infection elsewhere, as from the urethra to the eye, &c.: and also to prevent infection spreading in other ways to others. Dirty hands, clothing, utensils, bedding, &c., frequently spread diseases of this kind; for example, to the eyes, nose, mouth, ears, or the body generally. The discharge of simple urethritis will originate female vaginitis: and vice versa. In other words the discharges of diseases which are simple and non-contagious in the wider specific sense, but are merely diseases of irritation and inflammation, may induce similar ailments in others or even in the person himself or herself elsewhere. Clearly therefore in the light of modern surgical knowledge appertaining to the bacterial world of microscopic life, all of the Sinaitic rules for issues, which may to

some, even at the present day, appear, as they perhaps did to the Hebrews of old, trivial and unnecessary, were highly sanitary and wise, and not altogether typical: and doubtless prevented much disease then among the male and female Israelites, as similar precautions do now. This was one of the modes in which Jehovah kept the Hebrews of the Wanderings free from disease, and doubtless healthier than the Egyptians and other peoples of that day. It was by the strict enforcement of His own perfect laws of hygiene. Nor by contrast could any modern sanitarian or surgeon formulate laws, new and personally conceived, better adapted for the purposes in view than those revealed over three thousand years ago by Jehovah at Sinai; laws still as "perfect" sanitarily and as tuitional as they then were: and which it would be well if the laity of the present day followed as closely voluntarily as the Hebrews were compelled to do. Some of our leading surgical and gynæcological authorities, finding that certain antiseptics, now medically popular, *e.g.*, carbolic acid, corrosive sublimate, &c., are apt to become poisonous or even deadly by absorption, have discarded this modern chemical antiseptic system, and fallen back on superlative cleanliness alone by the abundant use of water only in its different forms of liquid, cold and hot, spray, ice, &c.; a method which practically only carries out and develops the hygienic cleanliness in all things, inculcated by the Sinaitic code of over three thousand years ago.

From more than one point of view it is a matter of great importance to take especial care of the cleanliness and general hygiene of the reproductive organs, as it materially concerns not only the individual but the nation and race. This is a matter which it is as possible to effect now as it was in Mosaic days; and even more so, as the facilities for it are ampler. Hence why these subjects are Scripturally entered into in such minute detail. To the pure all things are pure. Had Jehovah not spoken thus fully and plainly, the laity of all ages would have deemed that He considered the subject one of no importance; and would naturally have followed His example. Many non-professional minds cannot realize the presence of danger, especially that of infection and contagion, because they cannot physically and ocularly see or handle the cause. The microscope alone can obviate this, and bring the infinitesimally minute to view by human eyes. For important sexual reasons, especially the more roving nature and the greater ardour of the male sex, the law for male issues is entered into first and even more fully than with female issues; because the former are more apt to spread trouble beyond themselves. But other anatomical, physical, physiological and reproductive reasons make the importance of the hygiene of female issues even

greater than that of the male varieties. These necessary laws were doubtless formulated not only to lessen disease among the Hebrews themselves; but especially to prevent its advent from other nations of lax morality from whom they were ordered to keep apart; and that not only to avoid spiritual, social and moral contamination, but also bodily diseases of the gravest nature, like those contracted from the Moabites (Numb. xxv.).

The Hebrew men and women may not have had those diseases classed by the Divine Sanitarian as issues, in great prevalence or severity, if at all in their Desert days, when they were supernally protected, except when they sinned, and this health supervision was temporarily removed. But in the latter event, as at Sinai (Ex. xxxii. 35); Shittim (Numb. xxv. 9); and at Korah's rebellion (Numb. xvi. 47), &c.; they were afflicted with true and serious diseases. The law was made not for that era alone, but especially for subsequent ages, when they were not so carefully supervised owing to their own folly and sin.

These hygienic laws for issues are certainly theoretically not one whit behind those which modern medical science inculcates: but in practice are they not far ahead of what modern custom carries out among the masses; who, even in so-called enlightened countries do not yet fully know the comfort and benefit of or the diseases often avoided by perfect cleanliness of parts and of the body generally, both at certain epochs, and during certain ailments, accompanied by more or less profuse discharges?

Whether or not the Sinaitic term issues applies to all kinds of discharges from the human orifices and passages, as it is here suggested they do, the law for them teaches that the same great rules prevail in the hygiene of disease as in the hygiene of health; and particularly shews the vital importance of one great and universal factor, namely, perfect and constant cleanliness of the parts, person, clothing, &c., generally, thereby to ensure not only comfort and purity but also to prevent the spread of disease in the ailing person, and also to others. In these matters the laws of the Divine Sanitarian of Sinai are at least equal to those of the present day. And it would be well, in view of the prevailing popular ignorance, if these very rules were taught, accepted and followed more closely even now, and as assiduously as they were in early Hebrew times (Deut. xi. 20). Not only have they anticipated ours by many centuries; while at least not behind ours in value, but they are superior to them in one respect, namely, that they are imperative, compulsory, and not to be evaded, while punitive if neglected. No doubt were they fully followed now many of the sexual and reproductive diseases prevalent in both sexes among Gentiles would be averted by the Sinaitic code for issues.

No unbiassed mind can deem these Sinaitic rules for issues antiquated, obsolete, or puerile; but, on the contrary, exceedingly wise and perpetual. We no longer sacrifice or isolate, cleanse for those diseases, ceremonially or typically. But we isolate, wash, and use the utmost precautions to prevent the spread of diseases of this variety, by contagion or irritative inflammation. When we isolate, we do not follow the antiquated and unvarying forty days quarantine of the middle and dark ages, but follow the wiser though more ancient Sinaitic method of isolating according to the length of the ailment. We no longer sacrifice animals typically; those of the soul and heart being what is now required (Ps. li. 17), and only received (Is. i. 11; Ps. l.). These rules for issues found in the Pentateuch are as much a part of the Sinaitic law as is the Decalogue itself (Lev. xv. 33). And as they have never been annulled like the sacrificial code, they are still educational for the present day and generation, and for all time: and are fully included in the hint that "all Scripture was given by inspiration of God and is profitable for instruction and correction" (2 Tim. iii. 16); and therefore it is clearly our duty and our wisdom to "read, mark, learn, and inwardly digest" the rules for issues we have now been considering, in order that we may derive both hygienic knowledge and health therefrom. In His light we may perchance see light (Ps. xxxvi. 9); as we often do in countless other matters, hygienic and otherwise.

CHAPTER VI

POLLUTIONS

"Surely he is not clean" (1 Sam. xx. 26).

Pollutions or seminal emissions, when infrequent, are possibly normal and non-detrimental to health, strength, and generative vigour. But this is within bounds, that doubtless varies with individual temperament, morality, environment, &c. Then they may be deemed a non-morbific surplus secretion, voided by Nature to prevent super-accumulation and therefore perhaps sanitary. But when too frequent they verge on or become actual spermatorrhœa; a condition which is highly depressing, debilitating, ennervating, morbid, and pathological; therefore to be avoided as an occurrence verging on unchastity and unhealthiness; dangerous alike to bodily health and strength; to the purity and salubrity of mind, morals, social life and soul; or regarded as an incident indicative of some almost as deplorable local disease of irritation that serves to develop the unclean and unchaste thoughts that develop the catastrophe, and superadd to the impure hidden forces that culminate in the undesirable evacuation. Moreover, this is the most highly organized of the secretions; and therefore correspondingly prone to decomposition; and thus to become a nidus for the reception and cultivation of certain highly pathological bacteria. Is not this fact the secret of the development of gonorrhœa and syphilis, speedy decomposition in predisposed frames and surfaces; making a field for the reception of certain germs.

Hence why cleanliness of the clothing, person, and especially the parts is so highly necessary from a hygienic point of view: equal care being necessary to keep the morals, social habits, and the spiritual nature from developing therefrom unhealthy, abnormal and even more deplorable evils and aberrations than those of the body. Pollutions are largely traceable to unchaste thoughts, impure literature, unbecoming conversations, unwise companionships, lax morality and religious indifference. Improve these, and the bodily disturbance will decline with its indirect cause or causes. If the latter should be some bodily

disease that must clearly be removed. But the most general cause and the initiative one is usually of a moral nature. Many serious, obstinate, and even incurable ailments result from excessive pollutions of this kind: of which this is not the place to speak, or even to enumerate, beyond pointing them out as a potent incentive to forestall them preventively. Their results are highly dangerous, not only to the body, but also in mental, moral, social, and spiritual ways; a point of view that not only concerns the individual but extends to the family, tribe, nation, and race.

Biblical Pollutions

Male pollutions are spoken of hygienically and even legislated for, as a part of the Sinaitic code; and thus spoken of "if there be among you any man that is not clean by reason of uncleanness that chanceth him by night" (Deut. xxiii. 10). "This is the law of him whose seed goeth from him and is defiled therewith" (Lev. xv. 32). For this accident the Sinaitic law ordained:—

1st. The man and his clothing became "unclean" ceremonially, as they necessarily did physically. That is he was temporarily shunned by his fellow friends and relatives. He was "defiled therewith" (Lev. xv. 32).

2nd. The defilement had no doubt to be reported to the Priest. This is not expressly mentioned but it is clearly implied; as he alone could define and impose the law on the subject. And this involved a too severe isolation to be kept secret from the Priest. The report would evidently be direct and personal.

3rd. Inspection would be unnecessary; beyond seeing the individual.

4th. Isolation followed. "Then shall he go abroad out of the camp, he shall not come into the camp again" (Deut. xxiii. 10). "But when the sun is down he shall come into the camp again" (Deut. xxiii. 11). The isolation was temporary, but completely extra camp, and only lasted part of a day. But it was public; everyone would know or guess the reason of it. The person would therefore try to avoid a recurrence. The isolation was *a*, educational in spiritual and moral hygiene as well as of that of the body; and *b*, it gave opportunity and quiet for cleanliness. This isolation, although brief, would be highly tuitional of the higher and better nature, because it would remind the individual of God, religion, our human, moral, social, and

spiritual duties, and their obligations for personal purity of body, mind, morals, home and soul. It would inculcate the higher life of the God-fearer and worshipper. The repressive penalty, trouble, and shame and suasion would tend to prevent the repetition of the abnormality.

5th. Cleanliness. "It shall be when evening cometh on he shall wash himself with water: and when the sun is down he shall come into the camp again" (Deut. xxiii. 11). It may at first sight appear that this washing of body or parts was a purely ceremonial act, to be done just before relief from isolation. But neither is the time noted for the washing, nor does it strictly imply one ablution. The cleansing was doubtless begun as soon as he had left the camp: and would be repeated if necessary. Moreover, this was not a local cleansing, but general, to indicate the aggravated nature of the pollution in the sight of Heaven; and to make the occurrence distasteful and thus lead to its diminution. "He shall wash all his flesh in water" (Lev. xv. 16). The cleanliness inculcated was not only typical but also and largely sanitary, for reasons already given. Moreover, the temporary but public isolation, combined with the washing, were not only cleanly, but also and decidedly morally restorative, conservative, and preventive of further impurity in thought and act; both very dangerous and insanitary both to youths and adults, single and married: and well calculated to lessen and even suppress still more dangerous, reprehensible, and even highly morbific impure practices, often initiated in youth, but carried on into adult life; practices which the Holy Scriptures strongly decry (Gen. xxxviii. 9), because so utterly discreditable to man and hateful to his Maker. To make the matter still more public and repressive the law also enacted that every garment and skin that was soiled thus "shall be washed with water and be unclean till the even" (Lev. xv. 17). The additional labour and trouble thus enforced would still further tend to limit and restrict this form of "uncleanness."

6th. Sacrifice was not ceremonially ordained in this case: but only the washing before removal of the isolating restriction.

This Sinaitic law for pollutions was clearly both typical and hygienic, but largely the latter. Typical as indicating the necessity for cleanliness of the inner as well as the outer man, and of purity of the entire human nature. Jehovah hates the

garment spotted with the flesh (Jude xxiii.). The all-seeing and heart-searching eye knows well the close connection that exists between the frequency of this affliction with the waking thoughts, words and actions, and the general life of the person. There is no effect without a cause. Remove the cause and it goes far to reduce or remove the effect. As if He meant to emphasize His hatred of impurity and to aid the prevention of its sequel, pollution, God thus made the penalty irksome. The contamination of person's clothing, &c., might also spread disease of contagious kinds. Human secretions like this may be, and often are, contagious; and give disease both to wives and children in secondary ways, as well as by heredity. Syphilis and gonorrhœa may both be spread indirectly thus by pollutions; as well as minor congestions and inflammations ending in "issues" or discharges. This law was also preventive of mental, moral, social, and spiritual evil, and degeneracy. It was thus hygienic in its broadest sense; repressive of the animal instincts, feelings, passions, desires and appetites.

Could wiser or better laws be devised and formulated for this semi-morbific condition or its actually pathological aggravations, than these Hebrew laws of Sinai, over 3,000 years old. They did not shut their eyes, as we too often do, to this dangerous evil and its many and sad prospective results. Their law was strictly enforced: nor was evasion permitted. Nor could they plead ignorance; for this, like the rest of the law, would be publicly read and taught both old and young. Evasion of the law was punished (Numb. xv. 30-31; Deut. vi. 7; Deut. xii. 28; Deut. xvii. 9-13).

CHAPTER VII

MARITAL HYGIENE

"Wash ye—make ye clean" (Is. i. xvi.)

In addition to the ethics and higher considerations regarding marriage, elsewhere spoken of, the Holy Scriptures give some very pertinent health hints regarding its hygiene: both for the male and the female, in words of wisdom and warning (Lev. xv. 18).

1. Both had to consider themselves "unclean." This hallowed the act and reminded the Hebrews that the institution of marriage is Divine.

2. Both had to bathe themselves in water, *a*, for hygienic and physical cleanliness and purity; and *b*, to typify moral and spiritual purity.

3. To be isolated, doubtless only in the camp, till even. This was meant, *a*, to give opportunity for cleanliness: and *b*, time for reflection.

This law of temporary isolation and all it implied, and of excessive cleanliness is clearly not only physically sanitary but also decidedly restrictive of excesses; therefore healthy and altogether wise from a mental, moral, social, and spiritual standpoint: and therefore deserves the best attention of modern minds, lay and sanitarian, professional and otherwise. Moderation is the Bible rule in all things. This Mosaic marital law was partly typical, but also and clearly largely medico-hygienic.

Again, the law of the "periods" applied both to the married and the single (Lev. xv. 24). Connection then involved "uncleanness" for seven days; that is isolation for himself and bed and also for the woman; discountenanced this impure habit, and promoted both morality and cleanliness. It was hygienic in its broadest sense; of body, mind, and soul (Lev. xv. 24). It also prevented communicable disease.

Moreover, intercourse with a woman who had an "issue" and was therefore "unclean" physically and ceremonially, made a man "unclean," as did all the woman touched or that touched her (Lev. xv. 25-27). This offence, like the last, perverted both the bodily and the higher purity; and also prevented communicable diseases.

Again, a ceremonially "clean" woman might have no connection with an "unclean" man, as from an "issue" (Lev. xv. 2-13). This was educationally promotive of cleanliness of body and purity of the higher nature; as well as preventive of disease of the communicable kind.

These marital laws, although Jewish, and in a human sense ancient, are not puerile, nor are they obsolete because antiquated. Modern medicine endorses their value, and their applicability to modern life, and to human existence as long as the race lasts. They are perennial; nor does their presence make the Bible an obscene book. Had they not been as plainly spoken of, as the laws were for preventing stealing, lying, slander, murder, adultery, &c., humanity would have deemed that no such restrictions were necessary in the eyes of our Divine Creator; and so evaded.

PART IV

ADDENDA

PART IV

ADDENDA

CHAPTER I

THE HOLY BIBLE—MOSAIC CODE AND BIBLE HYGIENE

FROM A MEDICAL POINT OF VIEW

"The law shall not perish" (Jer. xviii. 18; Ps. xix. 7; Rev. xxii. 19).

That the so-called "Mosaic" code has had a very material influence on the progress, civilization, development, and religious enlightenment of the human race cannot be questioned, although its welcome and acceptance, either primarily by the Hebrews, its first recipients, and secondarily by mankind, to whom they were meant to transmit it, have fallen far short of what its Maker, Jehovah, intended. Nevertheless its tenets are now, directly or indirectly, year by year, becoming a more prominent, potent, and widespread factor in the life of humanity at large. But its full aim, both as given to the Hebrews and as modified by Calvary, do not appear even yet to be fully understood by many, even of its evident adherents. In order to fully understand the comprehensive and far-reaching scope and intention of this priceless, many-sided code, made for many-functioned but fallen Man, it is necessary to study it from several widely different aspects. This we now propose to do from a medical point of view; that is from the standpoint of that science which, above all others, is so closely intertwined with religion as to be styled its "handmaid." For the Mosaic code, though mainly, is by no means solely devoted to religious, moral, and social ethics, but likewise embraces other matters, and chiefly medicine. Any individual of orthodox, reverential, receptive, and unbiassed mind, especially medical men, ought, by a similar critical survey, to arrive at the following, or at least very like conclusions.

When our first parents, by disobeying God, sinned and fell, they not only lost Eden and all its happiness, ease and peace, but became degenerate in soul, morals, social life, mentation and body, and prone to disease and death in all of these entities of humanity. This punishment was also to be the lot of his progeny.

Fortunately the Divine Father, in His love, mercy and kindness, did not for ever cast them off; but gave them a chance of reclamation, forgiveness and restoration to His favour. This Divine plan of salvation comprised the invaluable gifts of a Redeemer; and, till He came, laws for their earthly guidance. Hence came our Saviour, and God's Holy Bible.

And, though He removed many of their Edenic blessings, He still retained, and perhaps accentuated by their troubles, two Divinely implanted instincts latent in every human heart; viz.—

a The recognition of the existence of a Supreme Being; the maker, sustainer, and ruler of the universe.

b The existence of a future state or life of the true ego, under new conditions.

These main factors of natural religion were not only implanted in every member of the human race, savage and civilized, born up to the present time; but they are also deeply rooted in the 1,700 millions of souls now said to exist, and the widely different forms of religion they profess.

A belief in the Holy Scriptures as the true "Word of God" and the best rule of human conduct, is also a further and fundamental part of the Christian doctrine and creed; which following includes about 445 millions of souls; that is, nearly 31 per cent. of the existing human race.

A belief that the Hebrew Pentateuch forms the initial and a most important section of the Holy Scriptures: and that the Mosaic code is a most valuable part of the Pentateuch, is another well recognised factor in the Christian faith.

That most ancient, erudite, encyclopœdic and inexhaustible book, the Holy Scriptures, though chiefly theological, historical, and biographical, inasmuch as it mainly treats of Jehovah, the creation of the universe and of earth; of Man, his different entities and correlations; contains other information of inestimable value, because it is Divine, on many other subjects of surpassing importance to Man, regarding matters of vital interest, and obtainable nowhere else. And makes so many allusions of this nature that a subject or theme can scarcely be mentioned that is not directly or indirectly spoken of; and in which few, if any, of the philosophies, sciences, or arts or even professions followed by mankind are omitted; and by which new information is often conveyed, so that even modern savans may not unfrequently learn from its many incidental but doubtless intentional, always interesting, and necessarily valuable allusions.

Of all the philosophies, sciences, and arts thus honoured by Scripture that of medicine ranks first: inasmuch as many most important medical allusions, hints, maxims, and rules are found

scattered all over its pages. No art or science is so often or more strongly alluded to as that of healing. From beginning to end the Bible is crowded with biological, embryological, physiological, pathological, medical, surgical, and therapeutic statements, facts and allusions regarding all of the most important branches of medicine, especially surgery, obstetrics, gynæcology, pediatrics, and many of their sub-divisions; for example, otology, opthalmology, forensic medicine, mental alienation, and so forth; all of which allusions evidently emanate directly or indirectly from a controlling mind, replete with fullest knowledge and widest grasp of each subject that could only come from the Almighty Author of all things, the All-knowledge and Divinity; who has condescended thus to give mankind information and in language for each theme adapted to the limited faculties and finite comprehension of the ordinary human mind. On the other hand medicine, that science and art which is far and above all others omnivorous, inasmuch as it absorbs and utilizes every other department and branch of knowledge; and searches everywhere for this; especially and eagerly scans the Holy Scriptures for special practical utilitarian information regarding its many different departments, and finds therein much regarding them all that is of interest and value; and in none more than sanitation. Where could we search more appropriately than in that volume bequeathed expressly by Man's Maker for human guidance; and given by the Being who not only made and sustains us and the world He developed for our abode, but also the forces and laws which rule it and the universe of which it forms part, but also the human forces and laws that govern Man's special being.

The Biblical matters now alluded to are chiefly found in the Pentateuch; and are of especial interest and value for two reasons:—

a They came specially direct from the Divinity and are thus more intrinsically Divine than other parts of Scripture that have passed indirectly through the mind and memory of different Heaven-inspired human beings because given in God's own words.

b These medical allusions are here not only numerous, definite, apposite, and full of purpose; but, when arranged and combined form a complete medical code of very great interest and value; which must be studied with, as it forms an integral part of the larger and still more important Mosaic code.

The infinitely precious Mosaic code now spoken of as forming a prominent item in the Christian faith; and as being the precious document in which the gem named the Medico-hygienic sub-code now alluded to is embedded: and holds so

important a place in the present theme, has been variously named in the Holy Scriptures. Thus:—

a The law of the Lord (Ps. xix 7.) after the Divine Being who constructed and divulged it.

b The law of God (Ex. xviii. 16; 1 Chron. xxii. 12; Neh. x. 29; Ps. xxxvii. 3; Dan. vi. 5; Heb. iv 6); as opposed to and warring against the law of sin (Rom. vii. 23).

c The law of the God of Jacob (Ps. lxxxi. 4).

d The Mosaic law (Deut. xxxiii. 4; Josh. viii. 32; John vii. 23) or law of Moses (1 Kings ii. 3; 2 Chron. xxiii. 18; Ezra iii. 2; Neh. x. 34-36; Dan. ix. 11-13; Luke ii. 23) after the Hebrews first and greatest leader Moses, who first received, recorded, taught, and carried it into practice. This is the name by which the law is chiefly known in Scripture. By this name it is endorsed by Divinity. And, mainly for this reason, it is clearly the preferable title.

e The law of the Jews (Acts xxv. 8); the nation to whom it was originally bequeathed, and for whom it was primarily and mainly meant.

f Israel's law of the righteous (Rom. ix. 31).

g Israel's law (Ps. lxxviii. 5).

h The law of Sinai (Ex. xxxi. 19), the place of its delivery and reception.

k The law of Horeb (Mal. iv. 4; Deut. i. 6; Acts xxv. 8).

l The law (Josh. xxii. 5; Luke v. 17; xvi. 17), a simple and collective term to indicate a well-known and national document.

m The Commandments of the Lord (Numb. xv. 39; Deut. xi. 27; 1 Kings xiv. 8; xvii. 19; Ps. cxi. 7; cxiii. 18; Luke i. 6; Rev. xxii. 14).

The Mosaic code is the Divine literary nucleus round which, as the centuries rolled on, there became accreted the more indirectly Divine prophecies, poetry, history, biography, &c.; which, after Christ's advent, became what we now know as God's Holy Scriptures (Heb. xxxi. 9; Ex. xvii. 24; Deut. xvii. 18-24).

Our chief desire and study as Christians is—or ought to be to know not so much what the early fathers thought and wrote; but what ought to be the fount of all their knowledge and ours—the Bible itself, says regarding the subject in question—the Mosaic code. Now, study of the Bible as a whole; of the Pentateuch, and of cotemporaneous history, shews that in its entirety the Mosaic code was given by the Deity to mankind, as a special educational revelation; at a special period; through a

special people; and for a special purpose, conclusions that must be separately considered.

The Mosaic law, which forms so large and important a part of the Hebrew Pentateuch, dates back from the present time at least 3,386 years (Usher) or 3,543 years (Hales); that is to 3,514 years (Usher) or 3,763 years (Hales) after the creation of Edenic or Adamic Man: taking for the latter the same chronology as 5,900 years (Usher) or 7,307 years (Hales): and thus 1,490 years (Usher) or 1,648 (Hales) before the advent of Christ. But in what year of the history of the world itself, we have not, and probably never will have, any definite means of judging: because human and therefore fallible astronomers or geologists cannot tell this accurately, and moreover vary widely in their estimates; while that supreme and final authority, the Holy Scriptures, gives no clue whatever to the exact date either of the long distant period which marked the "beginning" or first appearance of the Earth in Nature; or of the still more distant "beginning" when the primary incidents and earliest work of the genetic intellect of the Supreme first manifested itself in Creation; or what was its nature, form, place, and relative importance in the early and still unbegotten universe, save in the eternal mind and inner consciousness of the Supreme Wisdom and Omnipotence.

The delivery of the Decalogue and the most important part of this "Mosaic" law, in Jehovah's own voice at Sinai, amid very impressive phenomena of sights and sounds: and the subsequent awe-inspiring cloud-pillar by day and fire-pillar by night, that marked the personal presence of the Deity in the Holy Place of the Tabernacle during the delivery of the less important portions of the law, are not myths, dreams, or Hebrew romance, made for the glorification of the early Hebrew race; any more than the narratives of the Dispersion, Flood, or the Fall; inasmuch as they were seen, heard, and attested by Moses, Aaron, the elders of the congregation, and over two millions of Hebrews and camp followers: the same multitude who, with the entire Egyptian nation, had seen the ten plagues, and other miracles performed during, previous to, and after the Exodus. The delivery of the Mosaic law is thus as fully, or even a more fully verified historical fact as any other event of note, for example, the battle of Waterloo, or earthquake of Lisbon. Its authenticity, veracity, and Divinity are thus incontestible. Had the Mosaic law not been a strictly veracious historic fact, it would long since have been entirely repudiated, even by the Jews themselves. Not every one, even of the most patriotic and anxious to glorify their nation would have condescended to originate or perpetuate a fraud. And for the same reason the law found in the Pentateuch is practically identical with that

delivered to Moses; read by him to the Hebrews of the Wanderings (Deut. xxxi. 11); written out by him for their use in a book (Heb. xxxi. 9; Ex. xvii. 24; Deut. xvii. 18-24); named the "book of Moses" (2 Chron. xxv. 4). No renegade Jew has ever yet attempted to disprove the veracity of the Pentateuch or the law it enshrines: for undoubtedly, like every other nation, the Hebrews have then and up till now included some who were irreligious and apostates; men who would have gladly done this if they could or dared.

Though called "Mosaic" by Divine permission, example, and endorsement, name, principle, and practice (John vii. 19) the Sinaitic law is not, strictly speaking, Mosaic or the self-evolved work of Moses, but is entirely Jehovistic. It is over and over again, no doubt intentionally averred by Moses himself, both openly and in writing in unmistakeable language, that not only were the words of the law, but also its arrangement, wording, compilation, divisions, codification, and conception, those of Jehovah alone. The real Author was the sole, all-wise, omniscient, omnipotent, omnipresent, and eternal. Moses wholly, completely, and emphatically, as well as repeatedly, disclaims the authorship. He was merely the agent, receiver, transmitter, amanuensis, executor, and teacher of the laws devised by the Deity, and revealed through His servant (Numb. xii. 7) and friend (Ex. xxxiii. 11), Moses. Jehovah, the sole author, deserves and receives all the honour, glory, and credit for the Sinaitic law: and its far-reaching aims and results. And this, Moses is the first to give. The law delivered from Sinai is neither human nor Mosaic, but Divine. It is as true a part of God's creation as are every one of the many laws created by Him to govern His twain creations, the wide-spread, spiritual, and the far-reaching physical worlds; and the equally boundless forces which He created these laws to govern. It is as certain as every one of these laws; as inexorable and as punitive. It forms part of the laws of the universe; made for Man, and perhaps not for him and this earth alone, but long previously at work among other races in other and far older orbs than ours, whose entity, environment and history correspond with and resemble our own. And no part of Scripture except the sayings of Christ are so purely and truly Divine as these laws of God found in the Pentateuch; as they were given by Jehovah himself; and are bequeathed in His own words, exactly as He spake them to the Hebrews at Sinai and to Moses in the Holy of Holies.

Although Moses was honoured by being the recipient, divulger, transmitter, custodian, expositor, editor, and practical exponent of the greater part of the Pentateuch, and of the whole of the Mosaic code, spiritual, ecclesiastical, moral, political, and

otherwise, including the hygienic part with which we are now chiefly concerned: he only acted in this as the human agent, mouthpiece, and amanuensis of its real Author—Jehovah; Moses himself being repeatedly, emphatically, and purposely the disclaimer of the one idea, and the revealer of the other fact. Further corroborative testimony is found elsewhere in Scripture that the law was only given to the Hebrews by Moses and not conceived, worded, or formulated by him (John i. 17); to be read to them (Deut. xxxi. 11); and written by him in a book (Heb. xxxi. 9; Deut. xvii. 18-24) which they named "the Book of Moses" (Ex. xvii. 14; 2 Chron. xxv. 4).

Though Moses justly relegates himself to his proper place, and makes that a very subordinate one, regarding the Sinaitic law; by openly recognising and affirming that he was only the servant of the Divinity as regards the authorship of the code now alluded to: he must not therefore be deemed from his personal abnegation and self-immolation, and his transference of the honour to its proper quarter, to have been a mere mechanical tool of the Superior Creative Intelligence; a mere physical creature of the Creator, or a mentally inferior man, who merely bore a passive part in the reception of the law. On the contrary, he must be regarded not only as the most amiable, upright, and meek of men, but as one of the most brilliant, gifted, and learned intellects that Earth has yet produced or Man seen. The law was not divulged to an ignorant man or to one of average type and talent. Nor to a man merely gifted with an easy temper, an unusually facile phenomenal pen and super-retentive memory, that enabled him to readily remember or easily transcribe from dictation. God's sublime truths and revelations did not fall upon barren soil. Nevertheless was not his self-abasement a lesson, and an indication that he had accurately weighed humanity and human acquirements, success and intellect; and that he knew and desired all others to know that he was specially created, chosen, educated, and guided in all things by his Maker, the real Law-giver; and was only advanced and promoted by Him as the special selection of that day and the human being best adapted to gladly receive, fully appreciate, and wisely propagate the new and enlarged views, medical, theological, and otherwise, which the Almighty saw fit to enunciate as the true basis of those widely different departments of knowledge; and therefore as the man best adapted for His future special mission; and, let it be well remembered, no inferior part of this was, to write out, teach, and carry into effect the hygienic or health code, to be more particularly spoken of hereafter. Gifted from birth and selected for his phenomenal, innate, and no doubt specially implanted talent, and indeed genius; specially and carefully educated—no

doubt by all-potent, though unseen, supernal supervision; first at Heliopolis, then the chief and perhaps the first and only university of the world; instructed, indoctrinated, and ultimately absorbed into the Egyptian Priesthood, a body of learned men who were the custodians and originators of knowledge. His teachers made this heir-presumptive to the Egyptian throne learned in all the wisdom of Egypt, then the instructress of the world. Thus this born genius became in due time fit for the multiple rôle to which he was subsequently called by his Divine employer and guide. Amongst other philosophies, sciences, and arts, Moses was thus initiated into and no doubt became proficient in medicine, in which the Egyptians of the day took the lead. In this, as in all else, Moses doubtless excelled, and may have become the leading medical light of that community, perhaps of that era. The medically-educated Priest, Moses, who 50 or 60 years before had studied medicine at On, had ample time to mature and extend his medico-secular knowledge, as his age and his intellect ripened during his forty years' seclusion in the desert solitudes of Midian; where God ultimately prepared him spiritually, morally, and intellectually for medical and other teaching of a higher and more supernal nature than that of On. As a solitary shepherd his germ ideas and the crude teachings of On were doubtless Divinely expanded, and his mind begat enlarged thoughts regarding Jehovah, creation, the world, the once semi-angelic but now rebel man, the rôle of the Hebrews in human history, and his own personality and probable mission, yet unfulfilled. And thus by what to some might seem fate, ill-luck, and waste of time; but which was in reality Divine leading, Moses became admirably fitted to receive other ideas, further enlightenment, and fresh instruction, and to appreciate the new code which had laid bare to his view expansive ideas and many new fields of thought; and was so patently a fresh departure in every one of them; and in none more than medicine. It was thus by Divine development and heavenly aid that Moses was educated up, until he became far and away the man, both of his own day and probably of all time, the individual whose mind was best adapted and indeed alone capable of fully appreciating, doing thorough justice to, and fulfilling by experiment on the Hebrews and their camp God's newly divulged revelations of Sinai, including the Hygienic code, one of the vital law codes of the universe: the man best able to faithfully record and accurately transmit the inestimable legacy to future Hebrew generations and the entire human race; with all its wealth of deepest wisdom on so many different themes; its array of fully codified facts and ideas of the most beneficent, comprehensive, and far-reaching nature, and so well adapted for that, humanly speaking, stupendous project, the reclamation of

the Hebrews, and by and through them that of the entire human race.

From this fortunate combination of circumstances, which were by no means the outcome of chance, fate, or luck, but of Heavenly design; viz., a brilliant, innate intellect, skilfully developed by careful supernally-directed education, fully indoctrinated subsequently with Divine instruction in the deep and true mysteries embodied by Jehovah in the Mosaic code: this Heaven created, gifted, instructed, guided and honoured genius ultimately filled and became pre-eminent not in one only, for that has more than once occurred to other minds, but in many widely different rôles; in all of which, moreover, he reigned and still reigns supreme: and thus became at one and the same time a masterly and super-eminent legislator, general, leader, emancipator, sage, prophet, judge, lawgiver, historian, poet, teacher and priest: and likewise reigned supreme as the best, most cultivated, and comprehensive medical mind of that day, probably of all time; and certainly as the most eminent, theoretical, and practical hygieist that has yet appeared; especially after the sanitary revelations of Sinai and the Holy Place, information gladly received by the scholar-sage from its Divine Author, and at once incorporated with his former On-originated and Midian-developed secular gropings after pure and unadulterated medical truth. This knowledge given him by the Deity to teach others did not simply filter through him to the Hebrews: but both in reception and transmission became part of his own store and stock of knowledge. The knowledge was primarily Jehovah's. But it became, as it was meant to be the property of Moses, fortunate in receiving instruction of such inestimable value, wholesale and such as no other man or nation had ever received; and in having the commanding intellect to appreciate and the desired opportunity to shew its practical utility and value on the Hebrew people; the full outcome of all, which was soon shewn by his vastly increased practical wisdom after the receipt of those many different eruditional subjects; which changed, accentuated, and actuated all his future life, conduct and teaching; and became associated, as with all truly great minds, with the vastly augmented modesty and humility that spring from a full recognition of Jehovah as being both the source of all knowledge and the giver and maker of the intellect that receives and utilizes it. Jehovah was the originator, but Moses was truly both the earthly pioneer and father of sanitary science, and also its leader. Does he not hold this place for all time?

Considering the honour that Jehovah bestowed on Moses in creating, educating, and giving him this highly important, sacred, and distinguished mission, to be the interpreter of the

Almighty's words, ways and works, and the special envoy betwixt the omnipotent God and His puny yet rebellious offspring, Man: and, considering the multiple nature of the work God gave him as his earthly yet Divine rôle, which made him at one and the same time a nation's emancipator, leader, prophet, seer, historian, poet, lawgiver, physician, and sanitarian, rôles in every one of which he amalgamated his earthly and Divinely acquired information so judiciously as to reign so as to be deemed the greatest authority that then existed in them all. Does not this point to Moses as the most talented, versatile, comprehensive, far-seeing human intellect that has yet seen the light; and point to him, as with one exception, John the Baptist (Mat. xi. 11), the greatest and most honoured purely human being that has yet lived: as he was, next to the Saviour's forerunner, and, with Elias, the most highly honoured of men in sharing with the Saviour in the memorable transfiguration on Mount Tabor (Luke ix. 30).

Notwithstanding the paramount talent, nay, genius of Moses; and his, in a sense, intimate relation to the Supreme, who was his maker, selector, leader, and teacher; the chief lesson which this distinguished man has left mankind, especially medical men and that profession of which he was one of the most eminent pioneers, the chief lesson he appears to have left behind is unquestionably the example of his great Godliness, combined with extreme modesty, meekness, and humility, self-abnegation, self-suppression, self-effacement; and his constant recognition of the presence, omniscience, omnipotence, supremacy, and wisdom of his Friend and Maker, Jehovah, to whom he gave all the honour and glory in every circumstance. Need we be surprised therefore to find that this law, the Mosaic, which had the All-wise, All-seeing, and All-loving Creator for its author; and a man of commanding and sympathetic genius for its recorder; is a monumental one; such as humankind, honoured and blessed by the supernal revelation, will never find surpassed even by a combination of the highest human talent, or again received as a beneficent bequest from the Divinity.

The Mosaic code is a revelation from God, given to shew His handiwork and creature Man, how best to live from the combined standpoint and motive of duty and interest. A bequest of inestimable value, without which, as a preliminary to the major and final part of the plan of salvation, for which this code was the preparation; the human race would now be wandering further and further from God, their source and goal, and from the grace, happiness, and health which follow proximity to Him; as they were before the Flood, and again before the Dispersion: and would be sinking, as then, deeper and deeper

into spiritual, moral, social, intellectual and corporeal degradation, and becoming more like a race of demons and devils, than like beings originally created in the spiritual image and likeness of their Maker.

The delivery of the Mosaic code, therefore, at Sinai is one of the most prominent beacons in the history of Man; as it marks the beginning of a new era in a new, upward departure towards the light and leading of Heaven; the initiation of a fresh episode in the story of Jehovah's sway over His rebellious creatures, the human race. And Mount Sinai, from which the code was delivered, is clearly one of the monumental mountains of the world: Moses being one of the world's most monumental men; as was his era in the history of the world.

The most important part of the Mosaic law delivered to Moses on Mount Sinai consisted of the Decalogue and the ceremonial law, both having reference to the worship of God; while that which emanated from the Holy of Holies at the foot of Mount Sinai, consisted of the less important and more mundane, though still inestimably valuable part, which inculcates mainly man's duty to his fellow-men. All of these, however, though of different grades of value, are equally Divine; and all alike special revelations for mankind: each for a different purpose and entity, and the whole for the proper regulation and education of our human conduct on earth.

The supremely and supernally beneficent purpose for which the Mosaic law was divulged was, to restore to their heavenly allegiance and Edenic status, God's rebel and fallen human race, who had transgressed at a very early part of their existence. So virulent and alluring is sin, and so potent and persistent is its author, Satan, and so deep is the hold these soon and progressively had on the errant human soul, that the sad lesson of Eden had no effect as a deterrent from evil and ungodliness. Hence, as Man multiplied, he became more and more deeply enfolded in its meshes, so that after 1600-1700 years had elapsed the Bible record most graphically tells us that they were *only* evil, and that continually, and that notwithstanding Noah's moral and intellectual suasion and deterrent warnings, they became so vile that the deeply grieved and offended, yet ever-forgiving and gracious Deity, ultimately, in His anger, asserted His majesty and displeasure by a flood, which exterminated the entire alien race, the Divine intention being to raise up a Godlier stock from the God-fearing Noah and his family, eight persons in all. The lesson of the Flood proved as futile to regenerate man, or even lessen his wickedness, as did that of the Fall and expulsion from Eden: for the offspring of Shem, Ham, and Japhet became at last so rebellious and sinful that Jehovah was compelled to try once more to stop the new and, if possible, worse inroads of sin

by the confusion of tongues and dispersion. As a further development of His scheme for Man's redemption, the manner of the full evolution of which was hinted to Adam and Eve on their expulsion from Paradise, the Deity, with inexhaustible love and pity resolved to give Man still another chance of reform, and try still another educational and not punitive mode of human reclamation. As a preliminary He selected His "friend" Abraham, whom He spiritually enlightened, socially blest and directed, and from him developed a race, the Hebrews, for the further elaboration of His great purpose, the regeneration and salvation of Man. The race thus selected and set apart the Deity developed, educated, led and cared for spiritually, socially, morally, corporeally, and physically, with a view to make them a holy, happy, and prosperous people: a model and example for the rest of mankind, both of that and future times, to follow and emulate, by which the entire world might be enlightened and instructed for all time. A most important and indispensable factor in this intricate and complex educational scheme was the bequest of a superb code of tuitional laws, the Sinaitic or Mosaic, a production of Jehovah's own conception and elaboration for their guidance for time and for eternity; and meant both for Man's soul and for his body, his mental, moral, and social well-being: laws which cover Man's every entity and environment; and include rules for his relation to his Maker, his conduct towards himself, his fellow creatures, the earth he inhabits, and the rest of the vast creation of which he forms only an excessively minute and comparatively unimportant, yet integral part.

The Sinaitic law was thus and therefore devised by Jehovah and revealed to the Hebrews first, and specially for them, as God's peculiar and select people, and secondarily for mankind generally, all of them more or less indifferent to, and the majority rebels against their Creator and Sustainer, Jehovah: and therefore well on the road to spiritual, moral, social, and physiological ruin; and rushing headlong towards degeneracy of life and health, both of body and soul. And it was devised, worded, and given solely by the eternal love and forgiveness of the very Being whose creatorship and allegiance not only the majority of the Hebrews but also the entire human race had completely cast off, and against whom they were deeply and in many ways sinning grievously. By this Divine code Jehovah desired to make the Jews a model and exemplary nation for other races to copy; and they were to have been made the world's educators in spiritual, moral, social, mental, and all other sanitary matters. By God's aid and self-help they were first to be reformed nationally. By their example and healing influence under God they were to stay and counteract the flood of sin, then rampant, in-

augurate a holier upward tendency, and lead mankind back to purity, peace, and Godliness.

The Mosaic code in its entirety contains an elaborate, comprehensive, yet simply worded and easily understood mass of the deepest wisdom; such as an assembly of the profoundest human thinkers the world has yet produced could not, of themselves have despised or written of condensed systematized truth.

This Divine gift to mankind, the Mosaic code, was to the Hebrews, and even to their erudite leader Moses, both a boon and a revelation; which was no doubt gladly welcomed and fully appreciated, at least by Moses, as certifying, collecting, shaping, and codifying many half-formed, imperfectly understood, and vague ideas on many subjects of the utmost importance to mankind, both individually and as a race; for all times, peoples, circumstances, climes, and places. They are model laws that individually and collectively surpass all human laws ever made.

The so-called Mosaic, but really Jehovah's code, formulated not for that day, or for the Hebrews alone, but for the human race and for all time, is thus not local and uni-national or temporary, but universal and perennial. The only code of the kind that has ever been given to Man. So complex and complete that one man could not have devised it; perfect, like all the Deity takes in hand. Nothing could be better fitted, if it is fully followed, for human health and happiness; for the welfare of soul, morals, social life, mind and body; for here and hereafter; for time's interests and those of eternity. It is not uni-codal but multi-codal, complex; and consists not of one set of rules or one prominent subject, but of many different sets of laws on many practical themes, arranged in a comprehensive and masterly manner into a series of minor sections or sub-codes, each separate, yet complete in itself. These again combine to form a unique and incalculably important whole; each individually applicable to one or other of the different parts of that multiple-membered, many functioned, and compound being, Man: to Man as a whole, yet complex and compound being, and to his present earthly environment as well as to his future fate: and all of them allied to, interdependent, and meant to be a complete guide-book and rule of human conduct; each code and sub-code for the health, welfare, and prosperity of its own special department. These comprise:—

a Those meant to promote our relation to God as one of His subjects; for Man as an heir of immortality: laws for the human soul, morals, mental and social welfare; viz., the Ten Commandments or Decalogue; and meant to promote the health and welfare and happiness of our higher nature and the real ego, the soul, the home and home-ties and human communal intercourse.

b Those meant for Man, the cosmopolite and social being, and his relation to his fellow mortals; the land, poor, criminal, political and others meant to promote our happiness, health, and welfare in our relation to the rest of God's universe; and especially to promote healthy feeling and action towards our less fortunate fellow-beings and the lower animals; and also to promote the wise development of the land.

c Those meant for Man as a human body, an inhabitant of earth; *i.e.*, the body, hygienic or health code, consisting of the law of the leper and many other sanitary and medical laws that form a complete, though elementary, medico-hygienic code, meant to promote the health of the soul's temporary dwelling—the human frame.

d Temporary ceremonial laws meant to form part of the Hebrew worship; until the advent of the permanent Christian regime and High Priest.

Everyone of the sub-codes of the complete Mosaic law legislates for, and is well calculated to promote the welfare and health of the different parts and functions for which they were formulated by the Deity; both to forestall and prevent aberrations therefrom and to restore them to their proper healthy state when such have unfortunately occurred. They are thus each individually and all collectively both hygienic or preventive of evil and curative or healing of disease. They are both sanitary and sanatory: health-preserving and health-restoring; disease-preventing and disease-curing. This applies alike to the spiritual, moral, social, and also the sanitary codes. Another lesson inculcated by the Mosaic code is; that the hygiene of the soul, morals, heart, mind and body are clearly allied and interwoven. All are alike hygienic and preventive. It also applies to the other cosmopolite codes, the poor, criminal, land, and other laws; though with these we have here little concern; they are all and mainly preventive of aberrations, but also curative of those which have occurred. But, of those previously named, the three former law codes, those preventive and curative of soul, heart, or moral, and social disease, that is of spiritual, moral, and social aberrations, and also the fourth, the prevention and cure of bodily aberrations or corporeal disease; are all the result either of the direct or the secondary and ultimate outcome of sin. In short, the entire Mosaic code is meant to reach and to teach the acme of human hygienic legislation; fitted for all of the sin imbued parts and functions of Man; and for everyone of the manifold circumstances and conditions of human life. These codes combine to form a grand system meant for the elevation, education, and reclama-

tion of mankind, in soul, body, morality, social life, and otherwise.

At the same time it is necessary to recognize that not only the entire Mosaic law code, but also its different sub-sections or sub-codes, previous to Calvary, had a distinct and double nature: and possessed:—

1st. A real, permanent, and fundamental: and—

2nd. A temporary, typical, ceremonial, emblematic, figurative, or sacrificial part or factor.

The former comprises the true and permanent portion; the latter the superadded and temporary part; which consisted of the various oblations, ablutions, separations, sacrifices, and other ordinances and penalties incurred by those who broke the different laws, either wilfully or ignorantly; and who therefore came, either voluntarily or involuntarily under its shadow.

The Mosaic law as a whole has never been annulled or cancelled. The Deity has never done this. Moreover, it is a grievous error to suppose that it has been annulled by Calvary, and by the substitution or rather engraftment of Christianity on Judaism. Its annulment was unnecessary, and, moreover, formed no part of Jehovah's programme. On the contrary many reasons existed why it should be continued. Mankind is apt to deem that the Mosaic law is no longer obligatory and has been cancelled, because:—

a They deem it was made solely for the Wanderings, the Nomadic life, and camping necessities of the early Jews; circumstances and environments which have all ended. This is clearly a mistake, because the hygiene of Moses was adapted for stationary communities and for life under all conditions, as well as for Nomads: for the cities, towns, villages, and stone or brick dwellings of Palestine, as well as for the tents and camps of the desert; and for all localities, professions, occupations and trades as well as for shepherds, agriculturalists and widely scattered peoples.

b Others deem it abrogated because the Jews have ceased to be centralized as a nation, and to occupy their promised Judea; and that, like the people, so their early laws were now obsolete. But still, whether as citizens or as aliens, the Jews can still elsewhere and even more fully and widely practice, exemplify, and teach the principles of the subject to the Gentiles.

c Others reason that it is so because the Jews have failed in a large sense to carry out Jehovah's great scheme for human regeneration by Jewish teaching and example fulfilling their mission: a sequel which led to

their work being so to speak, handed on to the Gentiles. This reason cannot hold good because the duty of preaching, teaching, and practising the Law will specially rest on the shoulders of the Jews to the end of time; as it does now also on the shoulders of the Gentiles, and all whom God's Holy Scriptures have reached.

d Nor did Christ cancel the Mosaic law. On the contrary, He came not to destroy the law or the prophets; but, as the great anti-type and climax of God's plan of salvation, to fulfil the law of Sinai (Mat. v. 17-18). His own words were "for verily I say unto you, till Heaven and Earth pass, one jot or one tittle shall in no wise pass from the law till all be fulfilled" (Mat. v. 18). Not one tittle of the law was to fail (Luke xvi. 17). Never during any part of His ministry, or in any of the pithy and apposite teachings of His active and final career on earth did Christ ever give Man reason to believe He either abrogated or depreciated the original and primitive Sinaitic law; a code which it became probable He had Himself constructed and delivered at Sinai when He declared that the outcome of its tenets and teachings, curt as they are, might be still further condensed and crystallized into two paramount axioms, namely, love to God and love to our neighbour fellow-creatures (Mat. xxii. 37-8-9), the essence so to speak of the Decalogue; axioms which were to form the foundations and articles of faith of His new Church—the Christian, soon destined to supersede the old or Judaic. These are the fundamental principles from which the different precepts of the law spring, and on which its different commands are based and are meant to inculcate. Nor did His death, the one offering for all sin, which did away for ever with the former multiform sacrifices of the original Mosaic law, annul that law in its entirety. Neither did the Apostle Paul attempt to prove that the Sinaitic law had been annulled when he said that all the law is fulfilled in one word, even in this, "thou shalt love thy neighbour as thyself" (Gal. v. 14). Nay, he distinctly avers that the law is neither void nor cancelled (Rom. iii. 31). On the other hand no man could cancel or annul this law any more than he could any other of God's laws, whether spiritual, moral, vital, or physical. The Royal law of love is the condensed Decalogue (Jas. ii. 8). Love is the one word in which the law is fulfilled (Gal. v. 14; Rom. xiii. 10).

Therefore the spirit, essence, basis and fundamental part of

the old Mosaic law has never been annulled or altered since its revelation. It still continues and will ever remain in full force as long as man and sin hold fellowship; shorn however of certain minor, transitory, and unimportant enactments. Thus what remains of the Mosaic law that is still incumbent on us to receive and follow more or less closely consists of the Decalogue; and the poor, land, political, and other laws for civil guidance: the latter group however being often varied and modified according to circumstances, &c., of which civilization, Christian faith, and ideas and enlightenment are the chief.

A certain and comparatively unimportant, because temporary part of the Mosaic law was unquestionably annulled by the death, resurrection, and atonement of Christ as a sacrifice for sinners and the sins of the whole world. This was the allegorical, figurative, typical, emblematic, ceremonial, and sacrificial law inculcated on the Hebrews as an integral part of the original Sinaitic law made for the use and the religious observances of their temporary Church—the Hebraic. But it was this alone that was cancelled. Hence, though many and varied feasts, ceremonies, sacrifices, and observances connected with certain notable Jewish occasions, are no longer necessary and obligatory, except perhaps as voluntary, personal, or national oblations made in token of gratitude and love on the part of pious Hebrews towards the God who has so specially and in so many different ways blessed them and their nation; the Feast of Weeks; that of Atonement; that of the Passover; that of Tabernacles; and the sacrifices connected with different diseases, for example, leprosy, issues, and physiological conditions, such as childbirth, &c.; also various sacrifices connected with breaches of the different sections of the law.

The present position of the Mosaic code, if not in its entirety, at least partly, as an article of the Christian faith; as a rule for human conduct; and its relation to the human race; may be briefly summed up thus. The sacrifice on Calvary, which ended the Mosaic ceremonial law and the Hebrew form of worship, did not annul or even weaken, but rather strengthened the law itself. This mostly remains; the remnant being an even greater obligation than ever for human conduct to fulfil; though since then and for ever shorn entirely of its cumbrous, temporary and typical ceremonial, allegorical, or figurative addition; and no longer redolent of incense, sacrifices, oblations, and offerings; especially as regards fulfilment of the Decalogue: and moreover considerably modified or differently carried out and adapted in some of the other codes; *e.g.*, the poor, criminal, law, &c., to suit altered conditions, circumstances, times, places, races, varying grades of civilization, and, above all, the new requirements of the Christian dispensation.

Yet the "law of the Lord," though itself "perfect" (Ps. xix. 7) maketh nothing perfect (Heb. vii. 19): even though it constitutes every man, in a sense, a High Priest (Heb. vii. 28). During the continuance of the Hebrew dispensation "he that despised Moses' law died" (Heb. x. 28). But, although it is not so now in the letter, we still obey it; not from fear but from a very different and higher motive, namely, love to God and the Saviour. And because we find that strict obedience to the law is necessary to bring and to ensure soul peace (Ps. cxix. 165); the invaluable peace of God that passeth understanding (Phil. iv. 7); peace that we cannot derive from worldly things (Luke xii. 51). In the Mosaic dispensation the law was Man's schoolmaster to bring him to Christ (Gal. iii. 24). God was then teaching man that both He and Christ existed and ought to be their all in all; and that this is the natural relation of the Creator and the created. But now we are in Christ and under grace (Rom. vi. 14-15; 1 Cor. ix. 21): and therefore should be led not by the law but by the spirit (Gal. v. 18). As we are still under the law, both duty and love should make the law to be written in our hearts and minds now, even as in Mosaic times (Is. li. 7; Heb. viii. 10); not to be followed compulsorily but obediently and lovingly, as the best possible rule of life.

Thus in the Mosaic dispensation and down to the Crucifiction the law was paramount. Now, however, it takes a secondary place. Even strictest obedience to the Mosaic law will not alone save any human being; "for by the deeds of the law shall no flesh be justified" (Rom. iii. 20). Since Calvary Man can be saved by combined faith and grace alone. Both of these are indispensably necessary. For it is faith that brings us to God for clemency, and it is by grace that we are pardoned, "not of yourselves, it is the gift of God" (Rom. vi. 23). Strict adhesion to and fulfilment of the tenets of the law of Moses, as a proof of Godliness, though not as a claim for salvation, has now been supplanted by the Saviour's full and final atonement for human sin in its entirety. Thus the former religion, the Hebraic, in which works played so important a part, has given place to the Church of Christ, in which faith in and acceptance of the Saviour as our sole atonement, teacher, and guide, is the chief element. For now we are led by the spirit and not the law (Gal. v. 18). And good works, holy living, and a strict fulfilment of the Mosaic law, according to modern ideas, are only sequels, though sure ones, developed not by fear or even in tacit obedience to duty; but purely and solely from love to the Law-maker, Law-fulfiller, and Emancipator from Sin, the Crucified Saviour. As the Lord is our law-giver and king (Is. xxxiii. 22), if we would continue to be His subjects and His true disciples, we must therefore keep Christ's Commandments

strictly and obediently, even as Christ kept His Father's Commandments (John xv. 10). It is by knowing the law that we gain a complete acquaintance with what God deems sin, and what He does not consider it (Rom. vii. 7). By it we ascertain both the lighter and the weightier matters of the law (Mat. xxiii. 23). By it we also learn God's fiat that "whosoever committeth sin transgresseth also the law" (1 John iii. 4). The law in the Mosaic dispensation was paramount. Since the Crucifixion it takes a secondary place to Grace, Faith, and Love. In the Hebrew dispensation men were led by the law, now we are led by the Spirit (Gal. v. 18), and the law in our minds and hearts (Heb. viii. 19; x. 16): and whereas formerly the law was for all, now it is mainly for the lawless and the disobedient (1 Tim. i. 9). The broadly outlined Mosaic law is a revelation of the law codes of creation made by the mightiest and most potent of Evolutionists—Jehovah; who evolves eternal and immutable results by unchanging and potent laws. Its basis, and especially the unalterable Decalogue, will remain while the race lasts, as the chief, because God-derived, spiritual, moral, and social guide for humanity; not for the Hebrews only but for all mankind. That which Moses wrote and spoke 3,500 years ago, moved by the words, spirit, and aid of the Eternal, still applies to the Jews both of the present day and the future; and as much to the Gentiles of the present and the future as to the Hebrews; viz., "the secret things belong to God; but the things that are revealed belong to us and to our children for ever" (Deut. xxix. 29). The Sinaitic code is a revelation from a human standpoint of some of the most important of the laws of creation and the universe, more especially of those originated specially for Man, and made to suit his now degenerate nature, his environment, his present fallen sin-engrained condition: and no doubt prevails among and is equally adapted for other races and other worlds, especially among those orbs whose story, and those beings whose entity corresponds most or agrees entirely with Man's.

No mortal, whether divine, physician, or layman; whether highly or imperfectly educated; ever deems or should consider it either a retrograde movement, or derogatory to modern days, to go back to Moses and to his law-code: but without a second thought makes the Decalogue, his rule, with certain restrictions in their rule of conduct regarding the punishment of aberrations of its different sections, especially the omission of typical observances and sacrifices, and the substitution for those of heart sacrifice and sorrow for sin (2 Cor. vii. 10); and deems it not only the best policy but also the duty, not only of Christians, but also that of all men, to follow it to the very letter; with a view to thereby promote both their best earthly interests and

their highest heavenly ones. In acting thus they recognise it as the work of the Deity; and also His world-circling, time-embracing, and race-including intention, and object in bequeathing it. Man recognises it as a Divine law which it is wise and therefore best to follow; even if earthly inclinations and temptations try to lead them to break its different ordinances.

From a medical point of view the Mosaic or Sinaitic law is more than a legal document and ordinance. It is medico-legal; as it has to do with humanity, sin, and disease throughout; and in every one of his different entities, his soul, mind, morals, social life, and his body: every one of which are sometimes healthy, but oftener disease-stricken. If the former the law tends to keep them salubrious; in the latter to bring them back to a sound, healthy condition.

Thus, like secular, so Biblical hygiene is of two distinct kinds; first, that which tends to keep our human entities, organs, tissues, thoughts, words, and deeds healthy and sound: and second, that which tends to restore these, one or all, when they have undergone aberration to health and soundness. The hygiene of the Holy Bible may also be divided into two kinds, viz., 1st, the Mosaic of the Pentateuch, and 2nd, the post-Mosaic or that of the subsequent books of the Holy Scriptures.

The Mosaic or Sinaitic code may also be divided into two parts or sections, namely, 1st, the first and most important of these is the Decalogue or Ten Commandments; or rules for keeping healthy or restoring to health our perturbed human entities: those of the soul or spirit and those of our social, moral, and mental entities; which deal with our higher nature, inward feelings, and conduct (Chap. 12, 13, 14). The relative and actual value of these is shewn by their having been written by the finger of God Himself on God-hewn tables of stone; and personally and publicly delivered to Moses by the Divinity, amid the most sublime auspices, to indicate their peculiar value in God's eyes. These two tables were, unlike the other codes deposited and carried in the Ark. They were the first delivered of all; always first read and often the only ones to the congregation. They were ordered to be written on plastered stones and public monuments, which were of great import, books being scarce then. The Israelites were ordered to write them on the tablets of their heart (Deut. xi. 18; 2 Cor. iii. 3). Thereby both by eye and memory they were kept in constant remembrance of their duty; that is of all that God required of them; and of the way in which He desired they ought to walk (Deut. viii. 6); secret sins being, as they always will be, peculiarly obnoxious to God (Deut. xxvii. 28). They were meant for human hygiene; the health-preservation and

restoration of Man's higher nature, immortal and better immaterial entities, his soul, morals, and social nature. In the first law of the Decalogue God enforces His peculiar claims; His covenant relation to His people, and marvellous delivery of them from Egypt: and by manifesting that He alone is God, shews that He alone should receive worship and service of healthy human souls, minds, and hearts. The 2nd command was meant to prevent worship of the sun, bull, crocodile, ibis, &c., as did the Egyptians. The Lord whose name is Jehovah is a "jealous God" (Ex. xxx. 15) and will not brook idolatry. All material representations of Himself are as much condemned by God as the worship of other gods. Visiting parents' iniquity on the children does not mean eternal condemnation, but temporal, and modified by the parents or children's repentance. Mercy is shewn unto thousands of generations, that is—for ever. The 3rd law is to impress that God's name or names should ever be thoughtfully and reverently spoken and not unmeaningly or unnecessarily repeated, even in Divine or private worship; and, above all, should not be used in profanity or false-swearing. In the 4th law, remember implies not only the necessity for constant attention to it, but also enforces the ancient introduction of this day of rest, which was no doubt much neglected and often almost forgotten; although so indispensable to the bodily, mental, social, and spiritual health and welfare of mankind. The 5th command is of universal meaning and application. The welfare not only of individuals but of families and nations is closely connected with filial reverence and obedience. The 10th command was doubtless made because not only the Hebrews, but also the Egyptians and Canaanites, with whom the former came most in contact, were all peculiarly prone to the sins here meant and forbidden.

The ten laws of the Decalogue were fundamental, universal and intrinsically the most valuable of all the Biblical health-codes. They comprised the highest spiritual, moral, and social hygiene extant. And were selected and taught not only on account of their intrinsic and world-wide importance and permanence, unlike the ceremonial, political, and other codes. Not only were the Egyptians, from amongst whom they had come, and the Ammonites, among whom they were going, but also the Israelites themselves, peculiarly prone to the special sins here forbidden. They are models of spiritual, moral, and social hygiene; and teach us pithily how to feel and behave towards God, our fellow creatures and ourselves, in thought, word and deed. They are health-keeping and health-restoring for soul, mind, morals, and social ideas. The preventive and curative aim of these laws on Man's spiritual, moral, social, mental sins

will be abundantly evident (Chap. 12, 13, 14). They follow a natural order according to their importance; thus:—

1. The Mosaic Decalogue

Man's religious duty to God	1 Commandment:	Jehovah should be the sole object of our worship	Human Actions
	2 ,,	Its mode should be Spiritual, like himself	
	3 ,,	Intelligent reverence is necessary in worship	
	4 ,,	Constant regularity required in this	
Man's social duty to his fellowmen	5 Commandment:	Family relation foundation	
	6 ,,	Injury to human life forbidden	
	7 ,,	,, personal purity ,,	
	8 ,,	,, property ,,	
	9 ,,	,, reputation ,,	Human words
	10 ,,	All selfish desires forbidden	human thoughts and heart desires

The second part or section of the Mosaic law is mainly secular. Its sub-codes, though of great importance, are shewn to be of secondary value as compared with the Decalogue, by the mere fact alone that they were not promulgated, like the latter, in an open and awful form from Mount Sinai, but delivered by Jehovah to Moses orally and privately, in the quiet and solitude of the Holy of Holies, where God spake with His "chosen" freely and familiarly, "face to face as a man speaketh unto his friend" (Ex. xxxiii. 11). Moses subsequently spoke them to the people and wrote them out for public use. These sub-codes of the Mosaic law comprise:—

a The Ceremonial Law detailing the methods for conducting the God-appointed Theocratic Jewish Religion.

b ,, Civil ,,
c ,, Political ,,
d ,, Criminal ,,

} which deal with man's outward conduct to man.

These different codes and individual laws, though occasionally alluded to elsewhere, are not to be specially studied here, as beyond the scope of our subject, which is mainly evidential and concerns the medico-hygienics of the human soul, morals, social life, mentation and body. They are merely quoted here to shew the scope of the entire Mosaic code; of which the latter forms a distinct part: and to indicate the comprehensive, far-reaching nature and depth of the early Hebrew code, and incite to its further study. The table is taken from the leading

encyclopœdia of the day. The medico-hygienic or sanitary law of Moses deserve closer investigation, and is the chief theme of these pages.

2. The Mosaic, Ecclesiastical, and Ceremonial Law

This details the God-appointed methods of conducting the theocratic Jewish religion, and our duty to God. Even the mode of going to the Altar is ordained (Ex. xx. 25). So is the species of altar, which was never of hewn, but of unhewn stone (Ex. xx. 25). In its entirety the laws relating to Divine worship are found mainly in Leviticus. Of these the Levites were the appointed ministers. As a whole and in detail it is distinct and elaborate. They cannot be equalled by those of any nation of antiquity for the dignity and impressiveness of the rites. The ceremonial institutions of the Hebrews had for their first and primary object the inculcation of pure religious feelings and observances by exciting reverence for holy things; promoting knowledge of the true God; keeping the Israelites from outside contamination and corruption; inculcating the highest spiritual and moral purity by the cleanliness of God's dwelling; their clothing and selection of clean from unclean animals for food; sacrificing by selected Priests; the avoidance of leaven and lees of wine, or dough and honey, both apt to decay and corrupt meat-offering oblations; and the seasoning of these invariably with salt, preservative of animal substances from decay and an emblem of purity, perpetuity, perfection and friendship. Everything sacrificed had to be the best of its kind; vegetable or animal, and perfectly unblemished, whether for burnt, meat or meal, peace, sin or trespass offering. This has two sections: namely—

A. Law of Sacrifice (as a sign of union with God).

1. Ordinary sacrifices.
   - *a* The whole burnt-offering.
   - *b* „ meat offering.
   - *c* „ peace offering.
   - *d* „ sin or trespass offering.
     - *a* For sins of ignorance.
     - *b* „ unwitting uncleanness or broken vows.
2. Extraordinary sacrifices.
   - *a* At the consecration of Priests.
   - *b* „ „ purification of women.
   - *c* „ „ cleansing of lepers.
   - *d* On the great Day of Atonement.
   - *e* „ „ great festivals.

B. Law of Holiness (to God through sacrifice).
1. Of persons.
a The whole people as "children of God."
1. Dedication of the first-born.
2. Distinction of clean and unclean food.
3. Provision for purification.
4. Laws against disfigurement.
5. „ „ unnatural marriages and lusts.
b Holiness of the Priests and Levites.
1. Their consecration.
2. „ special qualifications and restrictions.
3. „ rights and authority.

2. Holiness of places and things.
1. The Tabernacle.
2. „ Holy Place.

3. Holiness of times.
1. The Sabbath.
2. „ Sabbatical year.
3. „ Year of Jubilee.
4. „ Passover.
5. „ Feast of Weeks.
6. „ „ „ Tabernacles.
7. „ „ „ Trumpets.
8. „ „ „ Atonement.

3. Civil Laws

Which deal with Man's outward conduct. The social laws of the Israelites are systematic for individuals, and cannot be rivalled by those of any nation of antiquity for their pure morality and for the wisdom, justice, and beneficence of their provisions. They are exceptionally merciful and just, for example, the sacredness of a poor man's home (Deut. xxiv. 10-14-15). Every man is to be punished or put to death for his own sin (Deut. xxiv. 16). (See also Deut. xxiv. 17-22; xxv. 4; xxv. 13-16; xxv. 12). Kindness to bought servants (Ex. xxi.) and others, for example, strangers in various circumstances, accidents, &c. Abundant proofs of the humane and refined spirit of the Mosaic code are to be found in every one of its divisions; and nowhere more than in the civil code. For example:—

1st. In the sacredness to the home, even the poor man's (Deut. xxiv. 10), into which no one could go, even if the house were his own brother's, to fetch a pledge.

2nd. In the sacredness of his property (Deut. xxiv. 6). One man was forbidden to take the upper or nether millstone of his neighbour to pledge: this being so necessary to grind the family corn. No doubt on this law is founded the common law of England and other civilized nations; which provides that no man shall be distressed of the utensils or instruments of his trade or profession as long as other things can be seized.

3rd. In the law (Deut. xxiv. 14), forbidding oppression of a poor hired servant and payment of his wages at sundown; to which merciful command we may doubtless trace the present practice in civilized countries of ending work at sunset and paying wages daily.

4th. The law forbidding the children to be put to death for the sins of their parents (Deut. xxiv. 16), but every man for his own sin; a command certain to prevent hereditary blood feuds, so prevalent still in many barbarous and semi-civilized countries, and not long extinct even in comparatively civilized ones.

5th. The principle of combining justice and mercy in all contrivances necessitating punishment (Deut. xxv. 1-3) on the principle of our Lord "whatsoever ye would that men should do to you, do ye also so to them" (Mat. vii. 12).

6th. Kindness and consideration shewn to all who labour, even the lower animals (Deut. xxv. 4).

And the sum of all Mosaic legislation is contained in these words "all that do unrighteously are an abomination to the Lord thy God" (Deut. xxiv. 16). The divisions of the Mosaic civil laws are:—

A. Of persons.

a Father and son. Power of a father sacred. Right of the first-born. Inheritance of daughters. Unmarried daughters.

b Husband and wife. Power of a husband. Divorce. Marriage within degrees. A slave wife. Slander. Levite law.

c Master and slave. Power of master limited. Hebrew slave free at Sabbatical Year. Foreign slaves.

d Strangers.

B. Law of things.

a Land and property.
All land God's property. All sold land to return to original owners. A house sold redeemable within the year. Houses of the Levites at all times redeemable as land and houses sanctified.

b Laws of debt.
1. All debts to be released every seventh year.
2. Usury not to be taken.
3. Pledges not to be ruinous.

c Taxation.
1. Census.
2. Tithes.
   a Of all produce.
   b Second tithe.
   c First fruits of corn, wine and oil.
   d Firstlings of clean beasts.
   e Redemption money.
3. Poor laws.
   a Gleanings.
   b Slight trespass.
   c Second tithe.
   d Wages day by day.
4. Maintenance of Priests.
   a Tenth of Levites' tithe.
   b Lease and wave offerings.
   c First fruits of redemption money.
   d Meat and sin offerings.
   e Price of all devoted things.

4. Criminal Laws

Which, like the last, deal with Man's outward conduct: and are mainly a development of the Ten Commandments. Like them these are clearly and sternly decisive: and, like the civil and judicial cannot be equalled by those of any nation of antiquity for their pure morality and the wisdom, justice, and beneficence of their provisions.

A. Offences against God (treason).
1. Commandment acknowledging false gods, *e.g.*, moloch and general idolatry.
2. Commandment witchcraft and false prophecy.
3. „ blasphemy.
4. „ Sabbath-breaking: punishment, death by stoning.

B. Offences against Man.
1. Commandment, disobedience, cursing or striking parents. Disobedience to Priests, judges.
2. Commandment.
   a Murder.
   b Death by negligence.
   c Accidental homicide.
   d Uncertain murder.
   e Assault.
3. Commandment.
   a Adultery.
   b Rape or seduction.
   c Unlawful marriages.
4. Commandment.
   a Theft.
   b Trespass.
   c Perversion of justice.
   d Kidnapping.
5. Commandment.
   a False witness.

5. Judicial, Political, and Constitutional Laws (Ex. xxv. 31)

These are comparatively imperfect; only a few leading principles being laid down, to be afterwards developed.

A. Jurisdiction.
1. Local judges.
2. Appeal to the Priests.
3. Two witnesses.
4. Punishment.

B. Royal power.
1. The King's power limited by law.
2. „ Princes of the congregation.

C. Royal revenue.
1. Tenth of produce.
2. Domain land.
3. Bond service.
4. Flocks and herds.
5. Tributes.
6. Commerce.

Are not these "laws" of the second part of the Mosaic code; ; transcribed by Moses in the Holy of Holies, at God's dictation, as clearly hygienic for the morals, social, and mental life of the Hebrews, as those of the first part—the Decalogue or laws for the soul's health and hygiene? Are they not framed

both to prevent aberrations, *i.e.*, disease in these their different human entities, as was the Decalogue? Are they not framed so as both to prevent a repetition of them and cure such as have occurred? The Decalogue is meant for Man's highest or spiritual nature; these for our lower, earthly, or human nature. By these the Divinity legislated for the health vitality and welfare of the four chief entities of the Hebrews; their spirit, mind, morals, and social nature. What of the welfare of their bodily entity? Did Jehovah forget this; or deem it beneath His notice?

In the Pentateuch we find other rules laid down for the lower nature or body of the Hebrews; rules given as part of the Mosaic code; they form part of God's Holy Bible; were transcribed by Moses in the Holy of Holies; are given in the very words of the Divinity; and by *Him* termed *laws* so as to form an integral part of His Sinaitic code. Do these not deserve to be chronicled by us as such and included in our epitomes, from which they are invariably omitted?

The laws now spoken of are typical and not only preventive but also curative of aberrations of Man's remaining or fifth entity, his body. They are hygienic; and that not only of health but of disease. Those calculated to keep the Israelitish body-health were not only personal but public and national. Though given in the introductory chapter (1, Vol. 1) they are repeated here for an obvious reason.

1. Mosaic Hygienics for Bodily Health

a Food; private and public (Ex. xvi. 13; Numb. xi. 3; Numb. xi. 33; Lev. vii. 24; vii. 26-27; xi. 1-47; xvii. 10-13; xvii. 15-16; xx. 25).
b Water; private and public (Ex. xvii. 6; Numb. xx. 11).
c Cleanliness; private and public (Ex. xix. 10; Numb. v. 2; xix. 11-22; Lev. iv. 11-12; vii. 19; vii. 4; viii. 17; viii. 32; iv. 28).
d Rest; private and public (Ex. xxxiv. 21).
e Disinfection; Holy Ointment (Ex. xxx. 21-22); Holy Oil (Ex. xxx. 34-35); Holy Incense, private and public.
f Labour distribution; private and public (Numb. iv.).
g System and order; private and public (Numb. vii. 11-16).
h Priestly matters (Lev. xxii. 4-33).
k Progression of tribes and armies (Numb. i. 50-4).
l Systematic camping (Lev. ii.).

2. Mosaic Hygienics of Disease, &c.

a	Childbirth (Lev. xii. 1-5).	Private and Public.
b	Leprosy (Lev. xiii. 1-59; xiv. 1-57).	
c	Issues (Lev. xv. 1-15).	
d	Do. female (periods) (Lev. xv. 19-33).	
e	Emissions (pollutions) (Lev. xv. 16-18).	
f	Scall (Lev. xiv. 58).	
g	Leprosy in garments (Lev. xiii. 59).	
h	„ houses (Lev. xiv. 56).	

This medico-hygienic sub-code of the Mosaic law completes and was necessary to complete the Sinaitic law of Jehovah for the whole man and for his every entity, soul, mind, morals, social life, and body. Jehovah is not only versatile but thorough. He is "perfect" in all He does. If the God of purity inserts these "laws" in His Book for our benefit and for us to read and follow, have we any reason or right to ignore or suppress them?

To these laws the term medico-hygienic is more especially applied as that which best indicates their nature and intention. For example, one of the most prominent, the "law of the leper," includes periodic inspection, isolation, disinfection by excessive cleanliness, fire, &c., by the Priest-physician. These are measures evidently meant as much, if not more, to prevent the spread of disease as to aid in its cure. In short, they are more hygienic or sanitary than sanatory—that is medically curative.

The application to these Biblical maxims and rules of the term "laws," both individually and collectively, is not initiative here. For we find it in the Decalogue. It is Mosaic, and therefore, by his shewing, clearly Jehovistic. These medical maxims were not then and are not now raised to the dignity of "laws" by human agency but were by the Divine will and the fiat of their Author, Jehovah, from Sinai over 3,000 years ago.

The Mosaic medico-hygienic law is a real and Biblical, not an imaginary or secularly constructed health-code. As with the entire series of law codes which combine to form the complete "Mosaic" or "Sinaitic" law, that portion of it which constitutes the medico-hygienic, is equally supernal, inspired, and wholly Jehovah's in conception, wording, and codification, as repeatedly averred by Moses (Deut. xxvi. 17) as His ways, statutes, commandments, and judgments. Strangely enough, although the hygienic part of the Mosaic law is clearly not

Mosaic and human, but Jehovistic and heavenly: and although it is inserted in the Pentateuch by its recipient Moses, by direction of its Author, and placed in the very midst of the other law codes, of which it therefore inferentially and strictly forms an integral and most important part; and although its subsections are distinctly called "laws" by Moses and the Supernal, and are emphatically laid down as emanating, like the rest of the Mosaic code from the Deity, all of whose statutes, words, and works are "perfect"; still these are seldom if ever quoted or alluded to—either *per se* or as part of the Mosaic code; or even as health laws codified for special conditions; but are treated as if they either formed no part of the Mosaic law, or were deemed unworthy of being referred to or quoted, because erroneously deemed obsolete or annulled.

Several pregnant questions naturally occur to Bible students. Especially these: was the Mosaic law, formulated in Heaven and revealed from Sinai, meant solely for the nomadic Jews; the environment of the Wilderness and the Wanderings; for that early grade of civilization and knowledge and that unenlightened state of society regarding Godly subjects? Or is it still binding on us, Jews and Gentiles alike, and human beings generally? Was it entirely annulled by Calvary; or partly cancelled thereby? If the latter, what part was abrogated; and what portion still remains in force? But, above all, our chief enquiry here is; are these Biblical medical matters bequeathed to the Hebrews 3,500 years ago in a very solemn, impressive manner, so as to be of the greatest historical and antiquarian interest, of any medical value to us at the present day? Or are they antiquated, out of date, behind the times, and medically useless now?

In God's Holy Bible, in addition to this great and Divine hygienic law, the Mosaic, instituted for the welfare of humanity, and the different entities of which this is composed; but scattered more over the subsequent parts of the Book and therefore donated indirectly by the Divinity, through the agency of His prophets, apostles, and servants; we find a large mass of medico-hygienic maxims and matters of infinite value. This, conjoined with the Mosaic, forms a most important health code. These two combined form the subject of the present volume under the headings that form the index. By referring to this the breadth and comprehensiveness of the Divine or Bible hygiene will be seen. This, the earliest health-code of the world is entirely Divine and irrefutable. The two sub-sections of which this is composed, the Mosaic and post-Mosaic have been massed and studied together as Biblical hygiene; because it is difficult to disassociate them. The Mosaic portion, however, is the most complete and far-reaching, and must have the prominence.

Hygiene is itself of a double nature, inasmuch as one branch, that of health-sanitary hygiene is meant to aid in health-preservation or disease-prevention; whereas the other, or hygiene of disease or sanatory hygiene is meant to promote health-restoration and disease dismissal. There is thus a clear and distinct, though closely allied hygiene for the sound, and another for the ailing human body. This holds good for its different entities also. To meet this, and in full accordance with our corporeal requirements (limiting ourselves meanwhile to body hygiene), we find that the Mosaic health code is itself of a double nature; inasmuch as it includes various laws, some of which treat of the hygiene of healthy conditions and others of diseased ones; the former meant to preserve the salubrity of already sound frames, and the latter to help in restoring that health which has been lost or deteriorated either by disease or by insanitary conditions. The Mosaic law of the leper may be cited as an example of one form of Bible hygienic law—the sanitary; and the law of issues as an example of the sanatory variety.

When combined, the different Mosaic hygienic laws, measures and commands now spoken of—for leprosy, childbirth, and many other frequent morbific or physiological conditions of the male and female human frame, form a complete and elaborate though epitomised code of curative and preventive medicine and hygiene; which includes preventive sanitation or the hygiene of health and curative sanitation or the hygiene of disease; and contains all the great base facts of that science and practice.

As with the soul hygiene; heart hygiene; mind hygiene; and home or social hygiene embodied in the Decalogue; so the donation of the medico-hygienic code implies and inculcates three things that it is necessary to recognise; because they are necessary to promote our efforts in the cure or for the prevention of disease of body. These are:—

a Self-effort to implicitly carry out these laws; as the main agent to effect the desired object.

b The Divine aid which inferentially follows attention to and fulfilment of the beneficent laws of Nature; particularly those made specially for our race.

c The help that the Author and Framer of these laws and the forces that these are made to control, promises and gives to all who endeavour to do God's will and obey His laws—sanitary and otherwise; and who recognise Him as both the Giver, Keeper, and Restorer of human life and health.

This Biblical hygiene, though not usually recognised; mainly perhaps because deemed exploded, ancient, and useless, was nevertheless devised, revealed and given as legislation which is as imperatively necessary for the health, happiness, vigour, and wel-

fare of the human body; as is the Decalogue and other Mosaic law codes for the health and welfare of the human soul, mind, morals, and social life. The entire Sinaitic law is hygienically health-preserving or health-restoring; and not the medical portion only.

Thus the Mosaic hygienic code for the body was not only a part, but an indispensable, most important, and indeed vital portion of and necessary to complete and make the Mosaic code perfect: and is as much a Divine revelation and bequest as are the Ten Commandments or any other portion of the Mosaic code. For while these legislated for Man's spiritual, moral, social, mental, commercial, communal, and national welfare, health, and prosperity, one more law code was clearly necessary—namely, the medico-hygienic, to order aright that most important and indispensable part or entity of Man, without which all his other parts, functions, endowments, and environments would be of no avail—namely, his body. With these major Mosaic law codes another therefore, the hygienic, combines to form one grand whole, meant to legislate wisely for the entire Man; soul and body, mind, morals, social life, and also for his peculiar environment, mainly our relation to each other and to our common Maker, Jehovah. The Mosaic code and hygiene of the Holy Scriptures as a whole may thus be divided into five primary sections, thus:—

a	Spiritual	hygiene	for	the soul.
b	Social	„	„	social life.
c	Mental	„	„	mind.
d	Moral	„	„	morals.
e	Corporeal	„	„	body.

The Mosaic code thus legislates broadly, for the whole man and for mankind as a whole; for this world's interests and for that we all would fain reach. Hygienically it is a perfect and complete rule of conduct for our every part, function, and relation; for time and for eternity; for our present and our future life. It is thus both comprehensive and far-reaching; a fact that should make us only revere the Sinaitic code more; and study its hygienic portion better than we have hitherto done.

Without the superadded corporeal or medico-hygienic subcode, therefore, the Mosaic law and hygiene of the Holy Bible would have truly been what we often do make it—imperfect and incomplete by omission. In short, the Biblical hygienic code forms an integral and indispensable part necessary to complete the far more elaborate and grander and infinitely more beneficent Divine scheme for the redemption and reclamation of the Hebrew race, and through them other races, from sin and from its many dire results; including disease and death of our every entity: and for the education not only in holiness, moral, mental, social,

and soul welfare; but also in body health, happiness, and physical welfare, after the pristine and perfect Edenic pattern.

The Mosaic hygienic code was bequeathed to the world by its Divine Author, not in the form of a crude and elementary, scattered and fragmentary conglomeration of imperfect health maxims, suggestions and rules. Or as a simple primer of sanitary science and practice: but in the form of a fully conceived, elaborated, systematized and codified, yet simply worded, readily understood, and easily followed system: one which embraces all the chief and fundamental facts of the science and practice of preventive and curative sanitation: adapted for the most frequent, important, and dangerous phases and conditions of life: and which, like the Decalogue, in its own special rôle and domain as regards human reformation and the education of the soul, morals, and social life, may be made more wordy, voluminous, and thereby more easily misunderstood, but cannot possibly be abbreviated without detriment, nor improved upon in any shape or form.

The Mosaic hygiene and health hints found in the Pentateuch are not a chaos of commands, maxims, and medical rules carelessly thrown together by a semi-ignorant and unskilled medical mind. They are not scattered but mainly massed; nor are they trivial but profound; not theoretical and worthless but of priceless, useful, practical value; not temporary and fugitive, but permanent; not human and faulty, but Divine, irrefutable and infallible. As with every other section of the Mosaic code, when collected, selected, studied, and systematized after human methods, they are found to be not only very advanced in view, practically and theoretically; but also methodically arranged and codified in this as in all other departments of the Sinaitic code by the Supreme, the master mind in this as in all else; correctly transcribed from Divine diction by His servant, friend, and amanuensis, the clear-headed, highly intellectual genius Moses; and formulated by Jehovah Himself to make the Hebrews not only of that day but also their progeny, strong, healthy, and long-lived; and by their example and teaching to confer by imitation the same benefits on the entire human race for all time. Comprehensive study of the Hebrew race from their inception in patriarchal times down to those of the Wanderings, of later Bible times, and onwards till now, shews how phenomenal and sanitarily instructive for us has been their history. This is shewn in several vital ways: thus—

a By their exceptional salubrity, longevity, and freedom from disease generally. And also their comparative freedom from certain widespread diseases, which decimate humanity, such as leprosy, consumption, &c.,

both in Mosaic (Deut. viii. 4; Neh. ix. 21), post-Mosaic and modern times.

b By their phenomenal, individual, and racial fecundity and rapid increase and permanence, even under the most adverse circumstances, such as oppression, poverty, exile, &c., as predicted (Deut. vi. 3; 1 Chron. xxvii. 23). The Jews have practically outlived all of the races that have dominated the world and nations of antiquity, the Babylonians, Assyrians, Syrians, Tyrians, Sidonians, Medes, Persians, Egyptians, Romans, Greeks, some now extinct. And shew no signs of decay, but are now more numerous and potent than ever and likely to survive not a few existing peoples.

c By the typical permanence and stability of their special racial peculiarities; mental, moral, social, biological, and otherwise; tenacious traits which make a Hebrew everywhere self-detective.

Nor can there be a doubt that these vital results were and are still due to three main potential factors; namely—

1. Hereditary vitality, transmitted from their specially selected ancestors, Abram and Sarah, whose progeny, for Divine purposes, were to become as numerous as the stars (Gen. xxii. 17) and sands of the sea (Gen. xxxii. 12).
2. The special blessing and care of God, who walked (Lev. xxvi. 12) and dwelt in their midst (Ex. xxix. 45), and personally supervised everything for their benefit, and guided the willing as He knows best how to do, not only in the lower hygiene of the body but in that of the higher nature.
3. But unquestionably much of their salubrity of both kinds was due to the many and varied sanitary agents, personal, communal, and national, that formed their Heaven-devised and therefore perfect laws for their spiritual, moral, mental, social, and corporeal health and longevity.

These hygienic results are not only interesting, but also important from their bearing on the welfare, development, and future of our own and other races, both present and future.

The Mosaic medico hygienic code, though largely made to counteract and cure leprosy, the special disease that Jehovah aptly chose not only to typify sin, but also to make it suggestive of the wisest mode of treatment of other and even worse contagious and infectious diseases; was not a typical code made for a suppositious, illusory, or allegorical ailment; but a truly, medico-hygienic set of rules made for the cure and extinction of a real complaint; very prevalent then all over the world, as

it is now; though fortunately owing to hygiene, almost unknown in Great Britain and similar sanitarily-enlightened countries. So of the other ailments and conditions for which rules are given in the Mosaic code. They are all real and frequent and not imaginary, little known or typical. The medico-hygienic rules of the Mosaic code are primarily medical and only in a secondary sense typical.

The Mosaic hygienic code, like its fellow sub-codes, which combine to form the complete Mosaic law, has its actual and its relative place and value as an integral part of the entire code. Thus, as it is strictly personal, and mainly concerns the human body, and therefore both life and health, it is clearly of more importance than, for example, the Mosaic land laws, poor law, law of primogeniture, ceremonial, marriage, criminal, alien, political, international, and other codes which legislate only for Man's temporal or less important communal matters. But, on the other hand, it is clearly of far less import than the Decalogue, which legislates hygienically for Man's better part and higher nature; for his eternal interests and heart, morals, social life, mind and soul.

The history and evolution of medical art and science are interesting and important studies. But what the ancients said and did in olden times regarding medical and hygienic subjects; and what the Deity saw fit to divulge at or about the same date are two very different things. The ancients often thought and talked crudely and unwisely. The latter did neither, but gave infallible advice, marked by the deepest wisdom, and most perfect knowledge of the subject. His counsel therefore is worth study. But our present object is not to consider what the ancients, either secular or medical, of the time of Moses, said and thought regarding hygiene. Or even what subsequent ages said about Bible hygiene; but rather to examine that hygiene for ourselves, critically and professionally. We shall thereby avoid the sad and unprofitable study of the backward progress of medicine; its dark age, which ran *pari passu* with that of the collateral arts, sciences, and philosophies; the crude reasoning of sophists; dreams of the mystics; absurd conceits of monks; deceits of the magicians and astrologers; and the strange records of folk-lore; subjects which varied now and then in different centuries, with a few felicitous observations and shrewd opinions of an occasional medical genius, whether Arabic, Greek, or Roman, endowed with that rare gift, unusual common sense; and wise enough to put the proper value on the demonology of the Chaldeans, Priests, slaves, and mere writers who, in the temple, museum, gymnasium, and market-place of old, advocated them during the long period of over 3,000 years which has expired

since the revelation of the momentous hygienic code from Sinai: a period during which hygiene, like all else civilized and human, suffered an eclipse and became relegated almost to the regions of barbarism; but from which it is now happily emerging with giant strides, especially during the latter part of the past century and since the Holy Scriptures and their educational power in all human affairs, hygienic ones included, has been more fully realized and accepted. To instance only a few of the medical men of this stamp who kept alive and increased the flame of secular medicine during this period of eclipse, and until the present generation made it fully blossom, the names of Vesalius, Harvey, Morgagni, Haller, Hunter, Bichat, Bernard, Lœnnec: many of whom were most accomplished physiologists, but yet failed to realize and develop its ultimate outcome—the science and art of hygiene; and thus were unable to develop or teach such advanced ideas as those which Moses received at Sinai: largely because they, like their predecessors, refused to accept the sanitary wisdom of the Holy Bible; and to see that they, like their predecessors, refused to accept the hygienic wisdom of the Bible, and to see that its medical lore and its sanitary teachings are professionally admissable, trustworthy, helpful and invaluable.

The Mosaic hygienic code is not purely typical, ideal, or imaginary, any more than are the various diseases and physiological conditions for which the corporeo-sanitary code was elaborated by the Supreme. Leprosy, for example, was not an imaginary or fanciful disease during the Wanderings, before or after these, any more than it is now. And, although Jehovah wisely chose this ailment as the best type of sin, the disease is not all typical or ideal. On the contrary, it is so aptly selected to typify a very loathsome condition, and one that is so abhorrent that the Great Hygeist could not have done the Hebrews a better sanitary service than to legislate, and that so wisely, for this frequent widespread and truly horrible ailment, *per se* and primarily: and secondarily to make it a fit type, and legislate for it as a good type of the whole group of contagious diseases, acute and chronic. Again, issues, childbirth, and other semi-physiological or semi-pathological conditions, for which the Mosaic hygiene legislates hygienically, were no more imaginary and ideal than was leprosy. So, neither were the different laws laid down for these and other medical ailments, purely ideal and typical. They were all wise, practical, and efficacious. Although over 6,000 years of time, climate and other factors have effected certain anatomical, physiological, and therefore corresponding hygienic differences in the descendants of the primitive pair; the human race of the present day cannot be said to differ materially from them in any of these respects.

Nor do they from the Hebrews of the Wanderings. Nor do the Jews of the present day differ materially, if at all, from Gentiles: or savages from civilized women, men, and children. Humanity anatomically, physiologically and medically analyzed are all very much alike over the globe. They all need hygiene and medicine to preserve or restore health; and to practice them in various degrees of elaboration according to their enlightenment. Disease has not been banished or driven from the world. Nor have any of the diseases and physiological conditions mentioned in the medical legislation of the Sinaitic hygienic code been either abolished or materially altered. A hygienic code is as necessary now as ever; and for Gentiles among whom these diseases and physiological conditions are as prevalent as among Hebrews. For example, the disease leprosy, so often alluded to and so carefully legislated for in the Sinaitic hygienic code, has not been extinguished, nor has it died out among mankind, either by Divine intervention or by human device. Nor has childbirth or issues or the various diseases for which distinct hygienic laws were made and precautions taken in the Sinaitic law. No more have these or any other of God's laws of health been annulled. These still continue and will ever remain in force as long as these physiological or pathologic conditions continue to exist; *i.e.*, as long as Man himself continues; and with him the sin he brought and still brings on himself; that first originated, prolongs, and oft intensifies these morbid or semi-morbid states. These conclusions are not stultified by the fact that a typical vein ran through each of these laws and ordinances; as an indispensable part of the law for the Hebrews and their special educational dispensation. But that was merely a temporary addition to the practical hygiene; and one that was meant to be annulled by Calvary. Beneath it lies the true hygiene; and this is and was meant to be as lasting and permanent as are the human conditions which called it forth and still makes its continuance necessary.

In bequeathing this great law of hygiene, one of the most important of the laws of vitality, Jehovah revealed facts that He had left man to find out for himself regarding many other laws of Nature. In thus superadding these to what He revealed regarding the laws of the spiritual, moral, and social worlds, as given in the Decalogue, laws that applied to the entirety of fallen human nature; He conferred a boon, the value of which can scarcely be estimated. Especially when we remember that He applied the same method and the same reasoning to man's other parts, interests and functions than his purely corporeal ones; and shewed that Man's highest, holiest, and wisest conduct of life should be hygienic throughout. The Deity doubtless divulged these hygienic laws, spiritual, moral, social, mental, and

corporeal, to mankind because they are of infinitely greater and indeed indispensable importance and value to the race, both individually and collectively, than would have been a knowledge of many other God-created laws and forces, spiritual, vital, and physical, that permeate and govern His mighty universe, otherwise called creation or nature, because these do not so closely concern Man himself, his present and his future, as those that He has seen fit to divulge, in part at least, at Sinai.

For, not only the medico-hygienic code, strictly so-called, but likewise every one of the other sub-codes that unite to form the grand and inestimably valuable summary of laws called the Mosaic code, is strictly hygienic in its scope and aim. For, like it, they are one and all meant and devised to aid and instruct as much in the prevention of aberrations as to aid in their cure, should they have occurred. In short, every one of the sub-codes of the Mosaic law, as well as the special medical one, namely, the spiritual, moral, social, criminal, poor-law, and so forth, is both sanitary and sanatory; health-preserving and also health-restoring; curative and preventive. Thus and thereby the whole of our ampler and multiple human nature, soul, morals, heart, social life, and, lastly, man's body, are hygienically and sanitarily legislated for and looked after; and mankind educated therein by the highest, wisest, and sole infallible authority that exists, namely, the Divinity.

As with the entire Mosaic code; so the hygienic sub-section was as much a revelation, a revolution, and new departure in medicine, alike in the eyes of the mainly illiterate Hebrews, and the intellect of their more learned leader Moses, as was the Decalogue and the other sub-sections of the Mosaic code. Moses, the shrewd medical student, now at least of 50 or 60 years' standing; sobered, leavened and matured in intellect by his 40 years' solitude as a heaven-guided student both of creation and its God-creator, was clearly just the man best fitted to realize the importance of, and to appreciate the originality, profundity, breadth, and value of the various laws embraced in the new Jehovah-devised and Heaven-elaborated Mosaic code as a whole. And among its other sections he would gladly welcome the medico-hygienic code. For this, like all the rest, would appear a revelation to him, familiar as he was with Egyptian and other lore, medical and otherwise; and all so very different in depth and accuracy, both in detail and as a whole, from the crude and elementary teaching of the secularly-learned men of that day. How these Divine and all-embracing laws would ease the mind of the Leader and Judge; laws the Hebrews dare not disobey!

As regards the authorship of this the Mosaic Hygienic code, it is, as with the Decalogue and all other subsections of the full

and comprehensive code known as the Mosaic law; and so called by Divine permission as well as Christ's example (John vii. 23). Moses himself clearly, repeatedly, and emphatically disclaims any part either in generating the idea or carrying it into effect. On the contrary, he gives the entire credit, glory and praise to Jehovah. And he is the first to point out and aver that he himself was merely the receiver, amanuensis, and recorder; and not in any sense or form the originator or author, either of the whole or any special part of it. Thus, the wording of the Mosaic law, being under special Divine care, is doubtless more strictly correct and reliable than perhaps any other part of the Holy Scriptures; at least than any other portion of the Moses-collaborated Pentateuch. This also applies to the hygienic code. This was carefully worded and codified by Jehovah. It was doubtless recorded with equal care by the highly-educated and medically learned expert—Moses.

It therefore seems not only just but wise to realize and aver that it may be still further claimed for Moses, the recipient, teacher, and first exponent of the Mosaic hygienic; that he was a heaven-created, God-taught prodigy, and super-eminent genius, specially raised, gifted, and developed for a special medico-philanthropic purpose: and a man of as superlative prominence as a pioneer sanitarian, both theoretical and practical, as he was in many other leading rôles; and thus, both from scholarly, literary and medical standpoints, the best agent that could have been selected to receive, edit, and practically apply this new Divine hygiene. It is only just to put the Mosaic hygiene in its proper place; and assign its due value in practical scientific sanitation. And still more so to give the Deity His due, as its sole deviser.

Surely, to give Moses his due, and to assign him his place in the rôle of human fame; and to give him what he himself would have been the last man to desire or ask for, as shewn by his reticence regarding self whenever that was possible; does not amount to deifying him or unduly lauding: or to award him credit which belongs solely to Jehovah. Especially when we, like the sage himself, give all the honour and glory regarding his own entity, capabilities, worth and work, like those of every other prodigy, ancient and modern, entirely to his Maker, Ruler, Guide, and God. Moses was no mere passive, ignorant, mechanical recipient of the medico-hygienic code than he was of the other more important parts of the law. For, educated as he was, and learned in all the wisdom of Egypt, with a view to his becoming, by Divine light and leading, the future Hebrew emancipator, leader, and, at the same time, one of the most illustrious men that has yet appeared on earth, not in one, but in many widely different rôles, no doubt excelling in them

all; he was likewise instructed and no doubt became supereminently skilled in medicine; one of the arts and sciences in which the Egyptians were so famous as to lead the world of that day. Though he became an Egyptian Priest at On, there is no evidence of his having become specially devoted either to theology or medicine. But still he was medically instructed and no doubt easily and rapidly became proficient in the literature, art, and science of this, as in all else that he studied. For though doubtless unknown even to himself, his studies were conducted under the Divine guidance and an innate impulse, with a view to future usefulness and the proper and complete fulfilment of his great mission. A medically instructed intellect like his, of great grasp, was just the one to appreciate, welcome joyfully, transcribe, teach and carry into effect, and spread the new and superb hygienic system and lessons of the all-wise Deity. A less brilliant and intellectual man might not have fully grasped them: so different were these new laws from the former crude and far less comprehensive hygienic ideas of that day. Then, as now, the medical mind of the Divinity could be best received, interpreted, and expounded by a medically instructed, spiritually enlightened mind. And if the mind of Moses was largely or mainly secular during his earlier student days, this, and also his medical knowledge, necessarily became expanded as in all other directions during his forty years of contemplative shepherd life in the solitudes of Midian and under the special, though silent and unknown tutelage of God. Therefore, on its receipt Moses would immediately feel that this hygiene was as magnificent a revelation of fresh truth, and as new a departure in medicine and sanitation, namely, from the curative to the preventive, as were the other codes in their special lines, especially the co-hygienic, spiritual, moral, social, political, poor law, and other codes; divulged by the Supreme Ruler and Teacher to supplant prevailing but very erroneous ideas in every department and phase of human existence.

So the Hebrews, to and for whom the Sinaitic law was originally revealed, were a people specially selected by the All-wise and All-seeing, out of all the peoples of the world of that day, as the best adapted, from a spiritual, moral, social, mental and physiological standpoint, to be racially developed, trained, educated, and elevated under His special supervision and after His own method, to ultimately become a "special people" to carry out His great plan for redeeming and reclaiming the entire human race; medically and hygienically, as well as otherwise.

The Mosaic hygienic code was revealed at Sinai about the year B.C. 1,491, that is at least over 1,000 years before the birth

of Hippocrates, the so-called father of medicine; and before the earliest reliable secular medical history. Therefore, not any human medical man, and not even Moses, but Jehovah, that Being who about 1,500 years subsequently appeared in human form and styled Himself the "Physician," because the infallible and skilled healer of our entire entity, soul, heart, mind, and body; is really the true "Father" and earliest exponent of hygiene, the chief branch of the healing art. Human hygiene therefore claims as its pioneer the Father and Maker of all the philosophies, sciences, arts, and entities, laws and forces that exist; that being of whose superhuman and supernal efforts puny man, even the very wisest, is only a very weak and fallible interpreter. He alone is the Being who has been capable of fully proving his universal and comprehensive medical wisdom and forethought by giving mankind the hygienic portion of the Mosaic code. The discovery and elucidation of not a few, but indeed most of Nature's forces and laws, is permitted, and perhaps specially given to men of pre-eminent talent. This cannot be said of hygiene any more than it can be of the spiritual, moral, and social laws first given and codified in the Decalogue. God, at Sinai, was the first exponent of the one, the hygienico-medical, as He was of the others, the psychical, moral, social, and mental; and He gave both in pursuance and furtherance of His special, grand and godlike, benignant and race-saving purpose.

The medico-hygienic sub-code, like the Mosaic code in its entirety, was devised, codified, and bequeathed for the benefit of his oft rebel subjects—the Hebrews, demoralized by prolonged slavery; and the rest of the still more alienated and degraded human race; by their all-wise, loving, omnipotent, and yet forgiving maker and sustainer, Jehovah; creator of the twain spiritual and physical worlds and of the potent, all pervading, and immutable forces and laws which sustain and govern them. It was thus the same Creator who made humanity, vitalized both the human soul and the human body, and gave these life and health; that also created the vital and biological forces and laws which govern these, either by way of protection or vitiation: and made among others the laws and forces we term hygienic; and enunciated them to Moses in an epitomized form over 3,000 years ago at Sinai for Man's benefit.

In order to effectually fulfil His beneficent educational purpose, the All-wise and Omniscient, in giving the best plan that could have been devised for human conduct while on earth; a plan having a view both to the present and the future; and by formulating a masterly, unsurpassed, and incomparable code of laws for the individual soul, morals, mind, social life, and body, as well as for the communal and national welfare, would

not be likely to superadd an inferior, elementary or temporary hygienic system for the conduct of Man's body or mortal part. It seems more likely that He would rather, as He actually did, give a masterly, profound, elaborate, and permanent code; one which is as "perfect" as are all His other laws (Ps. xix. 7); and far in advance of the knowledge of the day, and that anticipates purely human hygiene by centuries. Nor, when the typical part of the hygienic code was annulled by Calvary, did any necessity exist for annulling the truly practical and wise hygienic code. The human body was not to be annulled by the Crucifixion and Resurrection, in any branch of the human family, Jew or Gentile. Hygiene and hygienic laws were still to be required. The hygienic laws of life, not formulated, but divulged, and set in motion when Man was created; but yet hidden and undetected by him until first and systematically revealed at Sinai, continued unannulled and unaltered by Calvary, and so remain to this day, as they will continue in force while time lasts. The entire practical hygienic law of Sinai is perennial and lasting; not temporary, like another of the Mosaic codes, viz., the Hebrew ceremonial and ritual, meant for the temporary Hebrew Church.

As the Mosaic hygiene, though ancient, is not obsolete, antiquated and useless, and does not fall short of modern times, ideas and requirements; but is complete, suggestive, comprehensive, pioneer and permanent; and, above all, as it is revealed, inspired, and Divine; and one of Creation's, Nature's, Jehovah's many laws, is it not like Heaven's manifold laws and works, "perfect" (Ps. xix. 7) and sure (Ps. cxi. 7), making wise the simple (Ps. xix. 7) and therefore is it not worthy of "meditation therein day and night" (Ps. i.): and thus capable now as when delivered of fully meeting and teaching all that its Supernal Author meant it to accomplish towards the life and health, welfare and hygienic education of the Hebrews and the human race? And is it not therefore, instead of being neglected, discarded or despised by mankind generally, even by medical men, worthy of our deepest study and highest veneration? And again as it was, though first bequeathed to the Hebrews, meant not for them alone, but a legacy for humanity at large; does not its profundity shew that it was meant to be the starting point and basis of all subsequent hygienic systems, practical and theoretical? Should not its perfection and its Divine source combine to prove that the Mosaic hygiene is not temporary, antiquated, and annulled, but, on the contrary is perennial, universal, time long, and race lasting?

As the Supreme Architect, with an amount of skill that Deity alone can command, has constructed, combined, and correlated the many different organs, tissues, parts and func-

tions of that wonderful and highly complex vitalized machine, the human body, so as to enable them to work together with marvellous precision, accuracy and harmony, so as thus to effect their very numerous and very different ends: so also with incomparable accuracy, He has arranged that the hygiene of the spiritual and that of the medico-vitalized parts of Man should work with equally appropriate and beneficent harmony, correlation, and mutual helpfulness. The hygiene of the human soul, those of the moral feelings, mind and social life are very closely intertwined and correlated: and again so are these with those of the body; and vice-versa. Perfect purity and cleanliness in and of all things: and not only in thought and word, but also in deed and person, being the chief factor that the hygienic laws of Sinai inculcate. Neglect of these laws, despite or indifference regarding them, and especially disobedience of these health laws, that is of God's laws, those which the Supreme revealed to Man through Moses and Israel at Sinai, are as disrespectful of God's love and wisdom, as or would be a similar attitude towards the Decalogue, although necessarily in a minor degree. They are equally obligatory, inexorable and punitive.

That cleanliness is next to Godliness is thus endorsed and emphasized by Scripture, as cleanliness is made the basis of Hebrew hygiene; a fact which further shews that to give cleanliness the crown and first place of honour in hygiene is by no means a modern discovery, as is not unfrequently supposed. The Mosaic, like our modern hygiene, makes excessive cleanliness the foundation of all sanitary measures, both preventive and curative. Cleanliness in the Hebrew dispensation symbolized Godliness; just as unclean leprosy symbolized sin. Hence cleanliness formed a most essential and prominent item in the Hebraic religious ceremonial. And the more Godly the Hebrews were and the oftener they frequented the Temple and performed the ablutions of bodies, clothing, utensils, houses, furniture, &c., which formed an indispensable item in their worship; so all the more effectively was the cleanliness and purity of body, heart, mind, and soul, that is of the individual as a whole, carried out in pursuance of their ritual and fulfilment of the law. Thus cleanliness in all things, not only in body, but in heart and soul, were thus intertwined with and made a most essential and indispensable part of their religion and its rites. So that in keeping God's Sinaitic law of hygiene strictly, "Godliness" became not only a primary but also a secondary great gain, by promoting individual health and life; two of Man's chief earthly possessions; as well as gain in other important ways, especially spiritual, moral, and social. In both respects it is still so. For now, as then, the fulfilment of God's laws of hygiene are not only a clear, direct proof of

Godliness and obedience to the laws of Nature; that is the laws of God; but they also bring to those who follow them closely great hygienic "gain" and benefit. "Holiness to the Lord" which formed the ancient Hebrew watchword; thus, both directly and indirectly, promoted health; even as, on the other hand, a strict acquiescence in the laws of hygiene promoted holiness. The very intimate and strong relation that exists between Godliness and cleanliness is thus emphatically pointed out by the Mosaic hygienic code, and made compulsory by combining both in the Hebrew Church ritual, and making both equally obligatory.

The very fact alone that it forms part of the Mosaic code, and a very essential portion, proves that the hygienic law of Moses is veracious, revealed, and a Divine emanation. But, altogether apart from this Biblical and Mosaic endorsement, it bears internal evidence of its supernal nature and Divinity in its phenomenal comprehensiveness, profundity, prescience, accuracy, wording, curtness, perspicacity, conception, literary perfection, and its many evidences of priority over all secular hygienic systems.

The Mosaic medico-hygienic code had a specially endowed, primary, and most comprehensive object; like the Decalogue and other Mosaic law codes; and was meant—

1st. That Moses, the Hebrew emancipator both from slavery and ignorance, and their earthly leader and educator, should make them, individually and collectively, the healthiest, longest-lived, most prolific and most perfect, both physically and physiologically, of all the many different branches of the then existing human race.

2nd. To teach them what all individuals and nations should know, and recognise as the essential element in their education; viz., the fundamental elements of hygiene; that is, how to best preserve the twin inestimable boons, gifts, or "talents" with which their Maker has endowed them, namely, health and life.

3rd. As they had to be taught the spiritual, moral, social, mental and other laws of God; and shewn that neglect or disobedience of these would inevitably, sooner or later, be punished; so they had also to be taught the laws of health; and instructed that neglect of or indifference to these entail equally inexorable and punitive results.

4th. To shew them that, as the Decalogue was given to educate man in spiritual, moral, social, and mental hygiene, so the medico-hygienic code was bequeathed to educate them in the hygiene of the human body;

thereby to shew how closely these apparently very different, though really closely allied and interacting objects are correlated.

5th. To make the Hebrews, individually and nationally, by their life and example, and by the use and instruction of their then highly-prized national document, their Divine law code; not only physically but also physiologically the model race among humankind, both of that day and of all future time; but also the world's great hygienic exemplar, guide and teacher, and thereby help to make God's medico-hygienic law of Sinai world-wide and time-lasting; in short, the recognised hygienic law of the world.

The medico-hygienic code of Moses was however given as a necessary and unavoidable part of a still greater, more elaborate, and munificent scheme, the broad aim and scope of which was:—

1st. To educate the Hebrews as to the best means of attaining Earth's three highest blessings, holiness, healthiness and happiness, by right behaviour towards God, themselves, the world they inhabit, nature of which they form part, and the human race of which they are a unit.

2nd. To educate them in hygiene and other world-essential matters; make them a specially healthy, model, and exemplary race for the physiological instruction, enlightenment, and physiological redemption of the races both of that and future days.

3rd. To elevate and instruct the Hebrews as to what constitutes Man's best rule of conduct for time and eternity; and how best to rule himself and guide his soul, morals, social life, intellect, and body generally, so as to attain life's greatest ends, and the chief purposes for which Jehovah created and put us here.

4th. To these revealed and codified laws of God we find that the Deity has super-added another revelation in the Pentateuch, which takes the form of a corollary to the effect that the Divine Law-maker will bless those who keep these His commandments, and vice-versa (Deut. xxvii. and xxviii.). This evidently means, not that He will make the laws efficacious or super-efficacious if we obediently follow them; but that He will put it into the hearts and minds of those who desire to keep His laws, a continuance and increase of this laudable, wise, and profitable desire to do His will in this special matter, to obey His instruction, and be led and taught by Him. For this blessing and in this

Divine aid those who learn and keep His hygienic laws obviously partake. This promised blessing and Divine aid clearly elevate the desire for and striving after health preservation and life prolongation into a religious privilege and Heaven-imposed duty, in order to obtain the reward, namely, preserved or restored health and prolonged life.

5th. At the same time, God has made human beings individually free agents; and has left them to act in this matter, in a sense as they will; and thus permits them either to choose the good He offers by obedience to His laws, or the evil that will assuredly follow their disobedience or neglect. In this respect also, God's hygienic laws partake in their motive with the laws of the Decalogue, &c. To follow them, one and all, brings its reward. To neglect them brings its punishment. We alone can individually decide which course we shall pursue. And thus the Supreme Educator inculcates this sublime, all-important and inexorable lesson, the imperative necessity for decision of character and also for self-help, both in concluding to follow and in carrying out the details of His hygienic laws. If we would be as healthy and as long-lived as it is God's will to permit, Man should continue to learn, constantly and strictly, His medico hygienic laws. Just as we must strictly obey the Decalogue and all else that God enjoins if we would be as holy and as happy as this sin-stricken and degraded world allows mankind to be. We cannot expect the Deity to protect us, individually or even as a race, from disease and its results, any more than we can expect to be shielded from sin, unless we employ our personal efforts to avoid or repel it. If we disobey or neglect God's medico-health laws, which are part of His universe and His laws of Nature, we cannot expect Him, even by earnest and importunate prayer, to oppose and annul His own laws; and for our wilful and disobedient sakes perform a miracle. His laws, the medico-hygienic included, must take their course. If we break them and are punished therefor by broken health and shortened lives, the fault is not God's, but our own, for the disastrous results; all the more sad and deplorable because self-imposed and self-inflicted. Both to learn and keep these easy and simple medico-hygienic laws God will assuredly help us; but only if we aid ourselves in both respects; not otherwise. He will only second and aid our personal efforts. The

Deity only helps such as help themselves. If we not only study but keep His health laws, He will assuredly back our efforts with His all-potent aid. If we do not, His hygienic laws of Nature, made expressly for our nature and benefit, must inevitably take their course. The multiple laws of Nature, Creation, God must and will be respected and implicitly followed. If broken they will assuredly retaliate, and disaster ensue. The hygienic laws of nature and humanity are in no respect different, but are identical. They will assuredly punish us for disobedience as they will for neglect of any of the ten laws of the Decalogue.

Of all the many important and valuable, because Divine, medical hints contained in the Holy Scriptures, we naturally turn first and chiefly to those found in the Pentateuch in connection with the early history of the Hebrews; and mainly for the following reasons:—

1st. The Hebrews were directly taught of God (Deut. v. 23): and their hygienic education was not indirect, second-hand, and of human development like our own.

2nd. As this Hygienic instruction was Divine it necessarily was "perfect," complete, conclusive, infallible, and final.

3rd. It was concentrated, full and systematic; not scattered, but more detailed and explanatory than medical hints and allusions found elsewhere in Scripture.

4th. It was more decidedly hygienic than the other scattered health hints which were largely medical and physiological.

5th. It was divulged to a nation, like our own; and contained hygienic instruction that was not only personal but also of family, communal, and national bearing and interest.

6th. It was clearly meant as much for other nations and for all time, and so for us: as well as for the favoured first recipients of the bequest.

7th. If not the earliest hygiene it is at least the first complete system extant.

The Mosaic hygiene was not formulated by the Deity for the Hebrews alone, as a nation "peculiar" select, set apart and differing materially, either anatomically, physiologically, or in any other very marked way from other races, either of that day or of subsequent times. The physiology and anatomy of the many different and now widely scattered races descended from Adam and Eve, are practically identical, though differing sometimes in minor points, induced by the long continued, modifying influences of climate, food, topography, civilization,

and racial peculiarities. So also, although the hygiene necessary for different climatic regions differs somewhat, the great fundamental facts of the art and science are the same, and are thus of world-wide application. There was therefore no necessity for making a special and different hygienic law for each tribe, race, region, or period of time; either to be divulged like this, or found out by Man's own intellect: as the physiology, anatomy, and therefore the hygiene required for Man of the present day differs in no material point from those of the days of Moses or even Adam and Eve. Nor was the Mosaic hygiene meant solely for the Wilderness, or for the primary nomadic life of the Hebrews. It suited them equally well in Canaan after their settlement there. So again the Mosaic hygiene was as much adapted for cities, towns, and villages as for the camp at Sinai. Again, the Mosaic hygiene suited the aliens among them as well as the Hebrews themselves. It suited the Hebrews of the days of Christ as well as it did those of the Wanderings. It suits the Jews now as well as it did those of Mosaic times. It suits us and other Gentiles of modern times; and indeed is in no material points or form different from our hygiene of the present day. In fact, at Sinai God enunciated the great base facts of hygiene for Man as a race and for all time. The Mosaic hygiene is one of Nature's biological laws; made "in the beginning" with its other fellow laws.

Like most, if not all, of the other sub-codes of the Mosaic law, so also the hygienic is double and has its real or strictly medical and its typical, allegorical, symbolic, figurative, theological, and emblematic factors.

It is a mistake to suppose that the Mosaic hygiene is never brought into prominence now and scarcely ever mentioned except as a curiosity, because it has been annulled and is now obsolete and made a page of the past by the events of Calvary. Neither God the first nor Christ the second person in the Trinity, who alone could interfere, has ever given us reason to believe that it has been annulled or even in any way altered or modified. We nowhere read of Jesus being seriously ill; though no doubt He suffered from all the minor aches and ailments incident to humanity. His immunity from disease was doubtless due partly to His unusual hygienic foresight, His Divine nature, and the special protective power of His Father. But can we doubt that it was mainly due to the care with which the model man kept His Father's hygienic as well as all His other laws (1 Pet. ii. 22). To Him the health of His body was as much His care and duty as were the health of His soul, mind, morals, and social life. And, therefore He carefully studied and tended them all. This personal hygienic example and unspoken teaching was part of His Father's "business" on which

He had come to shew His fellow men that health of body might and should be studiously learnt and followed as an important and essential part of our daily "business" and interest and one of the items of life that we cannot delegate to anyone else and must do ourselves. The hygienic code was part of the law which Christ came to fulfil, ratify, endorse, obey, and reverence. For it was part of that law which probably He Himself delivered to Man about 1,500 years before at Sinai. Man could not alter or annul a Heaven-instituted law. And our own slow and uncertain human investigations after over 3,000 years, have come to very much the same hygienic conclusions as those of Sinai, namely, that the great fundamental facts and essentials of hygiene are identical with those which Moses taught and practised. The only conclusion therefore at which we may arrive is that the Mosaic hygiene still remains in full force as God's, Creation's, Nature's hygienic law for Man: and as such is still adapted, not only for the Hebrews, on whom its practical efficacy was first tested and is still so clearly shewn, and the nations of that early day who might have learnt and benefited by it had they chosen; but also the best hygiene that could be devised for the maintenance of the health, strength, longevity, and physiological felicity of the entire genus homo: not only for the Jews, far more numerous and not differing one whit in their hygienic requirements from Mosaic times; but also for the Gentiles of our rapidly increasing race, whose anatomy, physiology, and therefore their hygiene, is so very similar everywhere. The Mosaic and the true modern hygiene are identical. They are equally obligatory and remunerative when obeyed, and punitive when disregarded.

Though ancient, therefore, the Mosaic hygiene is neither antiquated nor obsolete. And the Mosaic saying that "the secret things belong unto the Lord our God, but the things that are revealed belong to us and to our children for ever" (Deut. xxix. 29), is clearly as applicable to the Hebrews of the present day, respecting the notable hygienic addition to the Mosaic law; as it was to those who heard Moses deliver it at Sinai thirty-five centuries ago. And it was as applicable to the Gentiles and also to those of the present day as to the Jews.

A hygienic law was and still is necessary for mankind. The basis and fundamental facts and great outlines of this corporeal law Jehovah gave at Sinai in the mystery of the Holy Place, in conjunction with laws for Man's higher nature, his soul given at Sinai. Both were a necessary and indispensable part of the laws of human earth-life; laws which never have been or can be annulled or materially altered since the Author both of the universe and its various forces and laws first created them: laws which may doubtless prevail in other orbs amongst other enti-

ties whose constitution, corporeal, mental, vital, and spiritual, corresponds more or less with or is identical with ours. The Deity who beneficently and thoughtfully gave laws for the entire man, body as well as soul, &c., has no more annulled or even altered the former than He has the latter. God's laws for body-hygiene, first promulgated at Sinai, are as permanent as the Decalogue laws for soul hygiene. They are an indispensable part of God's manifold laws for promoting the life, permanence, worldly and eternal happiness of the human race; that race which He created, selected, and still loves, and ever does His best to benefit. Nor were the Mosaic hygienic laws annulled by the Christian, which supersedes the Hebrew dispensation. On the contrary, this only amplified and emphasized them. Inasmuch as Christ came, died for, and belongs to all races and times. And God's laws for Man's guidance are everywhere the same, and identical the wide world over, as well as lasting. And of these, the laws of life and of hygiene are among the most interesting and important, as they are personal and constantly necessary. The Mosaic hygiene was not temporary, meant for the Jews only, or for the Wilderness alone, nor meant to be annulled either when the tribes reached Judea or when Christ suffered at Calvary. On the contrary its profundity, breadth, comprehensiveness, advanced views, pioneer nature, and position in Holy Scripture, shew that it is not a temporary institution, like the Hebrew ceremonial and Jewish Church; but permanent, like the Decalogue, and both a universal and time-lasting law.

Nor, though from a human standpoint ancient, is the Mosaic hygiene antiquated, obsolete, out of date, and therefore unworthy of credence or study, except by the antiquary or Biblical bookworm. On the contrary, some of the tenets which it was the earliest not only to inculcate but to enforce, because they were not minor but major points in hygiene and matters of the highest import in sanitation; are still in some respects ahead of the modern hygiene of which we are often so proud and laudatory. Whether we study these Mosaic laws separately or in the aggregate they are found to be far more important than popularly supposed. Moreover they are so practical, advanced and comprehensive, that modern medical men, and even hygeists, may still sit with advantage at the feet, not of Moses, the earliest sanitarian, or that of the Pentateuch, the pioneer sanitary handbook, but of the Divine Teacher, Jehovah, as their sanitary instructor, and learn much, both directly and indirectly, from His perfect and heaven-planned laws of health. Clearly, therefore, the Mosaic system should not only find recognition in our histories of medicine but should form the basis and beginning of all our modern and sanitary

schemes: and for reasons of which the following are the most important, we ought to deeply study the Mosaic hygiene, over 3,000 years old, not so much to cavil at it and criticize, as to learn.

1st. It is the initial, earliest, and pioneer sanitary system of the world.

2nd. Its advent re-modelled the art and science of medicine by sub-dividing it into two great branches; and shewing that the new branch, the hygienic, was not only worthy of being elevated to the dignity of a science; but of being made the leading, and not the secondary and subordinate section.

3rd. It supplies all the fundamental facts of hygienic art and science from the fountain head of wisdom and the best of all sources, namely, the Author, not only of the sanitary forces and laws themselves but of the living entities on whom these operate.

4th. It can justly lay claim not only to have been anticipative of modern hygiene by many centuries; but also to take the lead of all hygienic systems, ancient and modern, in priority of discovery, originality, profundity, and comprehensiveness.

5th. The Mosaic hygiene was the first to point out that, what to non-medical minds might appear absurd and unnecessary, namely, excessive physical cleanliness in all things; not only in physical matters, but also in spiritual, moral, social, and mental points; in short that cleanliness and purity of and in all that is human, of the body, clothing, dwelling, furniture, bedding; purity of all we touch, eat, drink, or breathe, of the air, food, and beverages: in short that universal, constant, and all-embracing cleanliness is the chief factor in all hygiene and in every sanitary effort, is a duty and privilege incumbent on priest and people alike; and, moreover, to teach that is not only necessary to learn and know these things, but still more important and needful to enforce and carry them into practical effect. Also that this knowledge must be self-sought, self-taught, and self-employed.

6th. The Mosaic hygiene was the first to point out and teach that purity in all things and in every department, phase, and circumstance of human life, is the main factor and element both in attaining and retaining the highest health and the longest life. This great and fundamental hygienic fact and factor, namely, the necessity for perfect cleanliness, not of the body and the usual solid and fluid ingesta; but also in all of the

multifarious phases, operations, conditions, and circumstances of life; was meant to preserve the frame from excessively minute, but from their numbers and rapidity of increase and invisibility to ordinary sight, very dangerous microscopic foes in the shape of ocularly invisible bacteria and other physical and chemical impurities. And, above all, it taught the necessity even of avoiding contact with or proximity to all that is either dead or impure, diseased, contagious or infectious, which may soil or do us harm. The import and value of this precious fact, the imperative necessity for perfect cleanliness, is at last recognised, not only by modern pure sanitarians, but also by physicians, surgeons, obstetricians, gynæcologists, and specialists of every sort in the wide domain of practical medicine. It is to produce this that we now employ disinfectants and deodorants of many different sorts so lavishly. But it would evidently be infinitely better if we could banish all such physical and chemical means of attaining physical purity, and attain the desired object by other simpler methods: and especially that excessive cleanliness should alone suffice.

7th. The Mosaic hygiene was the first to enforce a careful and strict personal hygienic routine as individually incumbent on and imperatively necessary for the health of all. Also that a careful and strict enforcement of public hygiene by the proper authorities, and cleanliness of tents, houses, camps, cities, villages, public resorts and buildings, streets, &c., was the only preventive of disease and the best or only preservative of the life, health, happiness, and welfare of the inhabitants, both of temporary, nomad settlements and of more permanent settlers in cities, towns, and villages.

8th. The Mosaic hygiene was the first to inculcate the necessity for a universal, national, and racial effort to promote by teaching, and if necessary enforcing hygienic measures both of a personal and communal nature. And thus and thereby pointed out inferentially that state medicine and hygiene is the only means of preserving the life, health, happiness, prosperity, and perpetuity of nations. And it thus inferentially pointed out that careful, individual, and public hygiene is one of the best means, and, both in a physiological and hygienic sense the only means of preserving the life, strength, health and happiness of the entire human race.

8th. The Mosaic hygiene was the first to recognise and

practically act on the belief in the contagiousness or infectiousness of certain diseases and their communicability from ailing to sound persons. And inferentially to shew that others are non-contagious or non-infectious, and therefore non-communicable. Leprosy, then well-known and dreaded, because very prevalent among outside nations, being most judiciously selected by the Divine Lawgiver and Supernal Sanitarian, as the best type of an infectious disease.

9th. The Mosaic hygiene was the first to record and to adduce as the dictum of the all-wise and infallible Maker and permitter of human ailments; that leprosy is a contagious or infectious malady. And to point out the imperative necessity thereby implied for isolating the ailing as one of the main, strictest, and first points for the prevention, cure, and extinction of this dire malady.

10th. The Mosaic hygiene was by many decades the first to inculcate systematic and judicious isolation of variable duration for leprosy according to the necessities of the disease or the special case; and inferentially for other infectious and contagious diseases. And in so doing it did not fall into the gross mistake of medieval days and secular knowledge; that of enforcing and unvarying and inelastic quarantine of 40 days, like our late human method to oppose such acute, contagious diseases as cholera, plague, &c.

11th. The Mosaic hygiene was the first to suggest and practically employ disinfection of various kinds for the prevention, limitation, and extinction of infectious and contagious diseases. For example Moses, the Priests and Hebrews employed:—

a Dilution and dispersion of the contagious or infectious emanations from human bodies, dwellings, clothes, &c., by the agency of an abundance of water, air, or earth; Nature's agencies.

b Their complete destruction by chemical means, *i.e.*, heat or fire.

c The destruction and limiting or preventing the growth of contagious or infectious germs and their spores by toxic remedies or bactericides and germicides, such as the frequently repeated or prolonged action of different kinds of incense. These, it should be recognised, are among the most potent factors in our modern hygienic methods.

12th. The Mosaic hygiene was the first to point out that hygiene is divided into two distinct yet important subsections; and that disease requires its hygienic factors as well as health: and that these two methods are identical, and differ only in disease, requiring their more assiduous application and careful selection than health. The factors in preventive and curative hygiene are identical as first pointed out in the Mosaic law. And the main factor in both is, again, excessive cleanliness.

13th. The Mosaic hygiene has furthermore shewn the difference between the Divine and our human developments of this science and art. How long in appearing and how slowly our secular systems of hygiene have grown; how lengthy the hygienic gloom and barrenness of the dark ages; and even yet how slowly they advance, how great the attention to minutiæ and unimportant details; how marked the contrast with the Mosaic code that mainly attends to major facts and fundamental points; which shew that its author has the fullest grasp of the subject, even to the smallest and least important item, that at once goes to the root of the matter and solution of every doubt. The whole comes from its Divine source not in a crude, embryonic, and theoretical form, but as a fully developed, definite, and practical treatise that could be and was at once satisfactorily applied to the people: and has both then and since been, in the fullest sense, efficacious in making that nation more healthy, long-lived, prolific, and permanent than any nation that has yet appeared.

14th. The Mosaic hygiene, like the whole law, shews such great superiority to all the human maxims and practices of the ancients that it prepared the way for Christianity's higher principles.

15th. The God-bequeathed Hebrew hygiene revealed one of the great permanent and most beneficent laws of vitality, the brilliant and far-reaching germ idea, that it is not only possible to prevent disease; but also that this is in every way better for mankind individually and collectively than to encourage and have it to cure.

Can a hygienic system which thus by 3,500 years anticipates, forestalls, antedates, and is still ahead of modern secular science, be deemed old-fashioned, worthless, obsolete, and unworthy of study, even scarce worth notice?

A brief survey of our humanly devised or secular modern methods of dealing with contagious diseases, to contrast with the Divine plan as laid down in the Mosaic code and law of the

leper, is both interesting and instructive; as it shews the wisdom and forethought of the latter, which moderns have so much neglected, mainly because they deem it is ancient, Jewish and Biblical. Modern medical books tell us that from an early period, the date of which is lost in the obscurity enveloping early medical history quarantine, that is a forty days (quarante, forty) was applied to leprosy; suspected cases being kept apart in lazarets or leper-hospitals; the length of period having its source in the teaching of Hippocrates (B.C. 430); who, according to Pythagoras, superstitiously attributed special virtue for the completion of many things during that length of time. In the 14th Century the same principle of isolation in these lazaret hospitals was applied to pestilential diseases, which were very prevalent then and also B.C.; especially the plague. In the 16th Century quarantine was still more methodically established, when the earliest, fantastic, and crude doctrines of contagion began to be formulated. This system began to be levelled almost solely against the plague until the beginning of the present century. But as the plague began to decline until its final apparent disappearance later on, so quarantine became more elaborate and clogged by speculative notions, grotesque and puerile details, which rendered it futile, absurd, unwise, impossible, and irrational in dealing with plague or any other infectious or contagious disease. It remained substantially unmodified from the end of the last to the fifth decade of the present century. Since then it has undergone great changes in conformity with our progressive knowledge of disease, and made to free it from prevalent absurd practices and detentions. The necessity for efficacy and wisdom of quarantine and sanitary cordons in some diseases, for example, cholera, first began to be doubted: then for suspected persons in certain diseases of doubtfully contagious nature, *e.g.*, cholera and typhoid: though the great benefit and imperative necessity for perfect isolation in all essentially infectious and contagious diseases is abundantly proved and will be disputed by no one. The futility of quarantine as a precautionary measure against cholera was shewn clearly in 1858. Quarantine has not therefore been enforced since; and is now solely applied to yellow fever, not from medical but from commercial and international reasons. Though still prevalent in some other countries, in commercial ones like England at the present day, it has been much modified, almost abolished, and supplanted by a wiser system of inspection and isolation of the sick and the suspected. This system has two branches, internal or home land quarantine for land and inland waters; and external or foreign quarantine for the requirements of the sea board. It will be seen that the successor of quarantine, or the modern method, namely, isola-

tion, is the better of the two, because it corresponds and is identical with the Divine institution.

A study of the Mosaic law, written over 3,000 years ago, and contrast of this with secular quarantine and isolation is both interesting and instructive, as illustrative of the far-seeing pre-eminence of the former and the human unwisdom in not following the Mosaic hint sooner, but foolishly preferring our own errant human knowledge to God's comprehensive, sound and searching advice, because it was wrapt in a Biblical, Priestly, Jewish, ancient, and presumably obsolete garb. Isolation was the main Mosaic point. And this corresponded not with the medieval quarantine, but rather with the more recent treatment of infectious diseases, namely, medical inspection, isolation of the suspected or ailing till disease disappeared or all chance of it was gone. The ancient Mosaic law of the leper thus anticipates our modern system by so many thousands of years. And it never countenances or alludes to a system like the medieval quarantine or quarantine of more recent date; *e.g.*, the beginning of the present century. The Mosaic isolation was not burdened and restricted by excessive and unnecessary elaboration, speculative notions, theoretical ideas, or grotesque and puerile details, or fallacious, futile, irrational results. In this preventive treatment of leprosy, and inferentially of all infectious diseases, the maxims of Moses thus antedate all medieval and even modern theory and practice. How long human medical science and practice have been in discovering by our own unaided judgment, a method which God divulged so long ago! How long and how much have men contemned or overlooked the Heaven-sent medical hint. Had mankind accepted the idea found in the Mosaic law, the blunder of the forty days' medieval and modern quarantine would never have been made. Moreover, did not the Supreme bequeath the hint regarding leprosy to lead mankind to think over and reason out its applicability to enrol in its working all infectious and contagious diseases of every kind and class? Nay, was it not meant to suggest the introduction of preventive measures for the prevention and ultimate stamping out of disease generally? And does not this Mosaic medico-hygienic law indicate that this ancient and Heaven-sent code clearly points out and settles the fact that its provisions and aims include the most philosophic of the two plans for combating physiological disease by preventing in preference to having to cure it. As it likewise is the wisest mode of meeting moral, social, and spiritual disease, soul aberrations and deformities. All four results, physiological, moral, social, and spiritual deflections are alike, directly or indirectly, the result of sin; and are best met, lessened, and uprooted by the same plan, namely, the hygienic or preventive.

Although the hygeist may, the pure physician or the dermatologist cannot glean much professional information from the chapters in the Pentateuch that treat of leprosy, beyond this:—

1st. That ailments were recognised by the Mosaic code which affected the skin only, and others in which both this and the deeper tissues were involved.

2nd. That disease which involved the skin, either alone or the deeper parts also, especially the former, were very imperfectly differentiated.

3rd. Notwithstanding this there existed a great tendency to excessive sub-divisions of the same or similar skin diseases.

On the other hand the sanitarian may learn much from the Pentateuch regarding leprosy. Thus:—

1st. That while leprosy in its various stages and varieties was the chief disease indicated; the Mosaic description of leprosy no doubt included various other diseases, especially those of the skin; both of the purely local and of the constitutional kind.

2nd. That the same difficulty existed then as now in distinguishing between certain ailments, especially between cutaneous diseases and leprosy; particularly in the early stages. And the diagnosis had often to be left to time, even in the hands of the medico-priestly experts.

3rd. That especial care was taken to examine and isolate suspicious cases early; and, if necessary, relegate them to renewed temporary isolation.

4th. That leprosy was distinctly deemed infectious or contagious.

5th. That judicious isolation of the leper or suspected, no matter what his or her rank, was deemed necessary and made compulsory.

6th. That the lengthy Mosaic isolation of the suspected or the leprous was not uniform or always of 40 days' duration (like our medieval quarantine); but weekly, fortnightly, &c., according to the intensity of the case, and the results of the segregation.

7th. That especial cleanliness of the leprous or suspected person, clothing, bedding, house, utensils, &c., and of everything these had touched, was deemed of especial import.

8th. That it is better to isolate doubtful or suspicious cases, even if mistakes are occasionally made, than to run the risk of spreading the disease.

9th. That for disinfection in leprosy the very strongest and

most certain were used, *e.g.*, destruction by fire, &c.; and never doubtful or half measures.

Impartial medical criticism thus shews clearly that the Mosaic sanitary code is still in some respects in advance of modern ideas: and is comprehensive, far-reaching, efficacious and Divine. And we can only wonder:—

1st. At the love and wisdom of the Deity who revealed it.

2nd. At the forethought of the Supreme for giving Moses, the transcriber and practical exponent of His hygiene, a preliminary and preparatory medical education in Egypt.

3rd. At the apathy and blindness of mankind in neglecting the Mosaic sanitary system so long.

The law of the leper and other Mosaic sanitary laws thus add another to the many instances derivable from Scripture in proof of the wisdom, forethought, and beneficence of the Creator toward His errant human family. Therefore, while medical men rightly study the writings of Galen, Hippocrates, Pythagoras, and other ancient medical worthies, mainly from an antiquarian point of view, to criticize and admire their literary and professional work, exceptional talent, and acumen which shone so brightly amid prevailing ignorance, professional and otherwise; we should also study those of the patriarch Moses, who antedates the most ancient of the medical fathers, Pythagoras, by at least 930 years; to admire, learn and follow his instructions and feel that, given as they were at that early date and immaturity of the art and science of medicine, and under the peculiar circumstances detailed in the Pentateuch, they are indeed not only God-inspired, or meant solely for the Hebrew nation, but intended for the whole human race and for all time; and meant to be a world-admiring, world-receiving, world-grateful boon.

Early mankind, even moderns and the most enlightened, nay, those who study and believe God's word most fully, are scarcely fully aware how much God did for the race by giving at so early a period of our racial history so complete a series of codes for their guidance; aware of the magnitude of or how comprehensive that multiple and many-sided code is as a whole; or how practical, efficacious, and far-seeing is its medico-hygienic portion; or how acceptance and obedience to which would do away with much, perhaps all of that indecisive medical doubt and disputing in investigations now or in former times made regarding this fell disease, leprosy.

And from this standpoint we can perceive that had the leading physicians of those early times, during the 3,500 years that have lapsed since the bequeathal of the health laws codified by the Divine health-giver and health-restorer Himself, studied

these precepts instead of decrying or ignoring them because ancient, Jewish, and Biblical, how much earlier would modern sanitation have been developed; how much further would it have been advanced, especially in those departments bearing on contagion and infection, their prevention and cure. Who may compute how many of those diseases of the Middle Ages, such as the Black Death and the frequently recurring plague which decimated the human family, might have been prevented or at least shortened: how many lives and how much misery would have thus been saved had they known and acted on the long-previously codified sanitary laws of Moses. It is pleasing to see that modern sanitarians are slowly coming round to Scriptural views, and are substituting inspection and isolation for the truly old-fashioned, antiquated and now obsolete, absurd, and superstitious medieval plan of quarantine. And that the leading medical men of the day are accepting the Biblical ideas of the contagiousness of the malady leprosy. And it may be conceded that it is not only Divines, philosophers, and physicists, but even physicians, that may learn from the Scriptures and find therein many valuable practical hints of various kinds both in the treatment and prevention of disease. A closer study of the leprosy of the Bible will prove this.

Putting aside the questions of the nature of Bible leprosy, and whether it was identical with, different from or a modified form of the old disease; or if it is identical with any other modern ailment, such as elaphantiasis; it is very evident from such a study that Leviticus mentions three different varieties of the disease; only two of which are malignant, one of these being at first undistinguishable from a harmless eruption: there being also a clear distinction between general or body leprosy (Lev. xiii. 1-28) and local leprosy as of the head, face, &c. (Lev. xiii. 29-44): phenomena necessitating repeated inspection to distinguish the true and noxious from the spurious and comparatively innocuous variety; prevent unnecessary disquiet of the patient, family, and tribe; and perhaps needless and unpleasant isolation and degradation, this disease being regarded as a Divine infliction (Numb. xii. 10; 2 Kings v. 27; 2 Chron. xxvi. 20). We ransack ancient medical records to note the origin, rise, and progress of early medicine; and, if possible, glean hints for practice or facts for medical history. And yet too often forget one of the most ancient of medical records, God's Holy Bible; one which, although so ancient, is not only the pioneer in hygiene but also still in the van of that, one of the noblest and most practical of all human arts and sciences.

Embedded in the Pentateuch we find a code of medico-hygienic laws for this hideous and loathsome disease, leprosy. This, named by the Godhead Himself the "law of the leper" is

seldom alluded to, and its precepts seldomer followed by medical men. The law is practically ignored; in many encyclopœdias does not even find a place, while less important secular laws have due attention: doubtless because many deem these Mosaic medical laws obsolete; allegorical; only meant for the Jews of the Exodus and other nations of that day, but now abrogated and as unimportant as the ceremonial law; one having been elaborated for a byegone religion and the other for a disease now extinct or practically so, as it only afflicts distant peoples and seldom comes nigh our own more civilized and hygienically protected dwellings, though tending to assume alarming proportions in certain countries and conditions. The ailment so often employed in the Holy Scriptures to typify sin and to shew that its impurity, loathsomeness, and intractability have to be met and combated in a like preventive and spiritually hygienic way; was not a fictitious disease, invented and introduced for allegorical purposes, but a real, pathological condition, and as true a disease of the body as sin is of the soul; as serious and as widespread.

The recent so-called recrudescence of leprosy, or, to write more correctly, our improved knowledge of its frequency abroad; shews that it is not an extinct disease, but is still widespread, deadly, and as loathsome as it probably was in Mosaic times; and thus that it is as desirable to stamp it out if possible. Clearly, therefore, the Mosaic law of the leper is not one that, although very apposite, was laid down for allegorical purposes as applicable for the typical leprosy, sin; and that should be deemed valueless and to be thrown aside, if it is possible to utilize it. It is as necessary to study and legislate for leprosy now as it was in Mosaic days. And if we find the ancient law of the leper wise, practical, and available, it is clearly unwise on our part to slight or annul it; nor is it meant to be so treated. Examination will shew that this typical Divine law of the leper is, so far from being obsolete, not only sound, but also far-reaching and comprehensive: superior to any law that any uninspired human being has or could ever formulate, because it is more than Mosaic, it is Divine and framed by the All-wise, who made both the disease of which it treats and the body to which it is to be applied; and is therefore authoritative, beneficent, and obligatory; for where can mankind find a better adviser or a more profound authority? The "law of the leper" was a law of God's own making, with a definite and deep aim, made for a special typical, very prevalent, and dreaded disease. The law of the leper forms only a portion of the complete Bible hygiene, and only a part even of the Mosaic hygiene. Still, it forms by far the most important part of both, as its issues and applications are so widespread and suggestive. It is not only applic-

able to the leprosy of the human race and the conditions of the present day; but forms the best mode of coping with the disease that has yet been devised. The Mosaic law of the leper ought therefore to be studied both by medical men and Divines. It ought to be practically followed as the wisest that can be devised. And it ought to have its place side by side with, though after the spiritual code; but yet assuredly before the moral, social, criminal, and other law codes given to Moses by God for the Jews, the world, and for all time. The Mosaic hygienic code in its entirety forms only a part, though one of the least important parts of the whole Mosaic code. Still it does form part of it. It is not purely Judaic or now obsolete, but permanent; and meant for the health and welfare of Man's temporal part, the body, as the Decalogue is for the health, welfare, comfort, and happiness of our higher nature, and of that which is indeed the individual, the soul. This hygienic code is indeed one of a group of gems, of which the central and most brilliant is the spiritual and moral code or Decalogue. Like other "natural" laws this Mosaic sanitary code is beautiful in its simplicity; and consists mainly in excessive cleanliness; a precaution which prevents the formation of noxious gases and living morbific germs; that is of the two chief poison factors that cause so many of our human diseases. Biblical analysts who leave the medical portion, namely, the law of the leper and the Mosaic hygienic code generally, out of the Mosaic law, make a grievous mistake. These are as much a part of the Sinaitic revelation and legacy as all the rest, including even the spiritual and moral law. Leprosy is as real and serious a disease now as then. Laws for leprosy are as necessary now as of old. The study of the disease and the best modes for combating it are as imperative. Respect for the Mosaic hygienic code and the law of leprosy should be as deep and reverential as for any other portion of the Pentateuch; because it is God-devised, Heaven-sent, infallible, and the outcome of Supreme wisdom, love, and prescience. Nor can there be any hesitation about the answer to the question, are the law of the leper and the Mosaic hygiene as a whole, one or both, of temporary and Hebrew obligation only; or are they permanent and suited for all nations and for all time. The latter is the unquestionable verdict. This is the true and only interpretation which the Holy Bible warrants. It is the true estimate of the value, nature and place of the Mosaic hygienic code which ought to supersede the negligent idea so long entertained.

We shall presently examine it critically from a medical and hygienic standpoint; both as a whole and in detail, rule by rule, section by section, and verse by verse. Disease prevention is illustrated in the Bible narrative, especially in the Penta-

teuch, both theoretically and practically, by leprosy. Disease prevention is thus an ancient and God-devised mode of meeting and counteracting disease; illustrated by one of the most ancient of ailments. Recent research goes to prove that the list of contagious and infectious diseases, in other words, communicable maladies, is considerably larger than was once supposed, and that it includes some formerly deemed non-communicable. Leprosy is one of the former. And research shews that it is one in which the period of incubation, the dormant or resting stage, is the longest, that is that this is the disease which is the slowest in appearing after infection. It is this latter fact that so long prevented the full and practical recognition of its contagiousness. The main object and scope of the Mosaic law of the leper evidently was threefold, namely—

1st. To extirpate or stamp out leprosy by preventive measures. The Holy Scriptures do not teach the lower department of medicine, the curative; only its higher one, the preventive branch; which, up till then, and even till far more recent times, humankind has neglected.

2nd. Suggestively and by an extension of the modus operandi, to extirpate all contagious diseases.

3rd. Suggestively also, and in like manner, to apply this generally; and thus in like fashion to stamp out diseases of all kinds by preventive or sanitary methods; that is by the higher of the two branches of medicine, the hygienic.

Unquestionably the initial idea for the preventive treatment and abolition of leprosy; infectious and contagious diseases of all kinds and disease generally, was not only theoretically taught, but also illustrated by Moses over 3,000 years ago; *i.e.*, about 2,500 years after the genesis of the human race. Jehovah, and doubtless His deputy, Moses, astutely foresaw a tendency to or at least a possibility of the wholesale development of this horrible malady in the Wilderness; and gave these laws to forestal and prevent this and possible panic by novel and severe repressive measures. Though no special evidence exists that the Hebrews were peculiarly afflicted with it during their bondage, as some have tried to prove. Still its vicinity made it imminent and always possible. And this long proximity to and acquaintance with this dread disease among their oppressors made the Hebrews, from previous habit and associations, up to the actual moment of the Exodus, most strongly imbued with the refined ceremonial and example of the Egyptians. So that the minute observances of the Mosaic hygiene and other laws would seem less novel and irksome. But for this law of the leper the early Israelites during the Wanderings, that is at a

most inconvenient time, when ignorant of the laws of infection and contagion, and how to meet and treat leprosy; were likely to be as deeply smitten with this dread ailment as were the Egyptians. Whereas we read of few instances of this disease during the entire Forty Years' Wanderings.

The reason for the delivery of the Mosaic hygiene and law of the leper was apposite, well-timed, and occurred in this manner. The human race, from the progressively and rapidly increasing demoralizing effects of the Fall, and their wilful rejection of God's guidance and advice, had so wandered away from the true and wise perception of mundane as well as spiritual things, and had become so physiologically and hygienically degenerate and disease stricken as to excite the commiseration of their long suffering, loving and merciful Creator. He accordingly resolved to give them, in addition to law codes for their spiritual, moral, social, political, criminal, &c., guidance, still another code to promote their bodily health. It is from this standpoint and in this light only that we can best ascertain the true reason for the bestowal of the magnificent and monumental series of philosophical codes, named the Mosaic; one of the most important of which is that named the law of the leper. Like these, singly and collectively, this was hygienic and preservative. Like these and as much as them it was an innovation, and a revelation bequeathed through Moses, who was not only gifted by God with superlative intellect, but was no doubt specially medically taught as a Heaven-designed part of his education, and had special gifts bestowed, like the 70 elders, that of prophecy and the Mosaic spirit (Numb. xi. 24-27), to the end, that he might not only properly divulge and teach, but also correctly carry into practical effect what was no doubt as great a revelation to his professionally biassed mind as it is to ours: and was no doubt far more appreciated by the Hebrew leader, to whom, in this capacity, leprosy would be more an incubus as a hamperer of his people, than it is in modern times and regions not leprosy stricken. Moses studied medicine, first in Egypt, second in his forty years of Desert life and maturer years, when his studies would be more original and likely to manifest the wisdom, comprehensiveness, and depth of God's laws contrasted with the shallow gleanings of Man's unaided intellect in philosophy, science, religion, and medicine. It cannot be strictly maintained that Moses was a military leader and not a physician; or that this law of the leper is a non-professional production. For it was far more than that. It was a strictly medical production penned by a highly-talented physician, educated *first*, by the Egyptian Priests at On; *second*, by his own Desert studies; and *third* specially indoctrinated in medical hygiene by Jehovah at Sinai. The Mosaic hygiene was an entirely new

departure and innovation. It was a distinct revelation such as no human being could have devised. Moses could never have written out so clearly and concisely and accurately this medical, God-devised and divulged code, the law of the leper, unless he had a deep insight into medical science. Did he not do it to Jehovah's satisfaction because he possessed the requisite professional and scientific acumen to seize and appropriate and amalgamate salient facts and points. Or can there be a doubt that Moses received and incorporated this new medical revelation and entirely novel departure from established dogmas of the school and priests of Heliopolis, where he was taught, and also the outcome of his subsequent private studies in the Desert, with all the delight that new and brilliant ideas beget in the mind of truly intellectual men; and with all the respect which great God-begotten and Heaven-delivered truths instil in the heart of a specially endowed, deeply reverential, and receptive human being; as he doubtless enjoyed an accurate knowledge of futurity by Divine inspiration (Deut. xxix. 22-30). Can we doubt that he enjoyed a deep insight into the so-called unseen world of matter and life—the microscopic; which reveals the things, both living and dead, that play so important a part in the economy both of physics and biology; and indeed often play a far more important rôle in creation than many mightier objects: and among others into the region of bacteric life, as agents of disease; those minute organisms which are so potent by their rapid multiplication and venemous nature, that so often cause dire disease and kill human beings by the thousand; thereby illustrating that "God hath chosen the weak things of this world to confound the mighty and base things and things that are despised to bring to naught things that are" (1 Cor. i. 27-28). Occasional hints occur in the Pentateuch, which almost make it certain that the principal laws of asepticism, a modern study, were known to Moses in a semi-definite way. Thus leaven and the lees of wine were forbidden for offerings made by sacrifice by fire, as corruption had already begun in it. So, honey, which was easily decomposed and turned to sourness, was also forbidden for the same purpose (Lev. ii. 11). Was Moses aware of the existence of the yeast fungus, that of wine, and that of sugary substances or the microscopic germ of leprosy, though unable to demonstrate them? Or did he explain them as did Liebig and his school during the middle of the 19th Century, and deem these merely chemical processes due to eremecausis or a mere physical or chemical alteration in the particles of fluids or solids? Answer these questions as we may, one fact remains certain; namely, even if Moses was not enlightened as to the existence of the microscopic, bacteric, disease-producing world of life we now know to exist; the beneficent Creator did not leave

him and therefore the Hebrews and posterity unaware of this unseen physical danger to life, even as He also warned against the dangers to our moral, social, and spiritual life. For though human beings generally, and even the most talented leaders and pioneers, "see through a glass darkly" (1 Cor. xiii. 12), all things are naked and open unto the eyes of Him with whom we have to do" (Heb. iv. 13). Not only is the morbific effect of bacteria, &c., on mankind known to their Maker and ours, but also their effects. Few men, philosophic, scientific, or purely literary, but find time and life all too short for all they contemplate to do; or even to put on record all they think or know. Who of all Earth's busiest worthies had less time or opportunity to record his every idea than Moses; so overburdened as a leader and legislator that he had to call in others to aid him in his herculean task (Ex. xviii. 25)? Besides, did not the prophets, like all the major and minor ones who succeeded him, only record what they were inspired to pen. So Moses, like them, may have and no doubt did know much he did not divulge for Hebrew enlightenment. This idea is corroborated by Scripture. Moses could not "go beyond the commandment of the Lord," but spake only "what the Lord saith" (Numb. xxiv. 14). God does not always see fit to make knowledge too easy; but meant man to work out this problem for himself. How slow we have been in solving it. Over 3,000 years have elapsed till man detected why and how disinfection by fire killed contagious diseases by destroying their living microscopic bacteric germs: and why or how isolation prevented their spread by keeping the spores away from the healthy. How slow to reason and find out that a potent, vast, though very minute world, all invisible to our unaided eyes, lay beyond our ken: that this was of vegetable nature, tenacious of life, diffusive in air and fluids, of prodigious reproductive energy, of many different varieties, and that these were the true cause of contagious and infectious diseases. Only a very few medical minds in the not very distant past have possessed somewhat of this prescience, and had the courage to conclude that the exanthemata were due to ocularly invisible microscopic life of animal or vegetable nature. No doubt many deep and invaluable thoughts and practical ideas, and glimpses into the intimate arcana of nature were implanted in the mind of this servant and friend Moses by the Deity; as active and as potent for good-will to man then as in later times, when their reality and manifestation have been more generally and fully permitted.

This hygienic law was divulged to Moses in the Holy of Holies of the Tabernacle when God gave him notice. Probably each law was spoken *per se* to give time for careful and accurate transcription on utterance. Moreover, in doubtful matters,

Moses had the privilege of audience with the Supreme, to commune with and ask advice when required; for example, in a case of ceremonial defilement (Numb. ix. 6-12). In the bequest of this hygienic, as of other Mosaic codes, the Supreme had an educational object in view. He did not tell them everything concerning leprosy in plain language; as He desired to train the Israelites to think and reason for themselves, and thus find out how best to deal with it and other allied ailments. He meant by this law to shew inferentially that *disease, like many other mundane disasters, is preventible.* He thus had an aim of momentous import to mankind of every age, creed, and clime. And therefore chose a disease for illustration of a chronically, that is slowly infectious nature; the only infectious disease known of that early day: and not one of the acutely contagious variety, like those which now afflict us; or others which are perhaps less contagious than leprosy, or even not at all contagious or infectious, but originated in other ways. Furthermore, to effect His object He chose a disease of which the contagiousness and preventibility were readily discernable and known to the people; and thus endeavoured to inculcate inferentially that by preventing small beginnings of disease, and especially by removing the causes which originate it; not only leprosy but perhaps every other existing ailment, may be met, opposed, conquered and exterminated in the same way, by prevention and hygienics.

We may wonder why the Supreme instructed Moses thus in hygienics, and bequeathed sanitary laws to the world, and did not instruct him in and reveal curative matters. This was probably:—

1st. Because hygiene is the chief and most important branch of medicine; although the curative was the earliest cultivated. By it He points out that just as it is better to avoid sin than have to meet its punishment; so it is better to prevent, that is avoid, disease than have it to cure.

2nd. Medicine was too lengthy to codify. No doubt Moses was Divinely taught more of this than he divulged. But his arduous duties prevented him from chronicling this. He had more important matters to record. And this was evidently not a permitted subject.

On the other hand we may wonder why He gave hygienic rules for leprosy only. This was doubtless:—

1st. Because sanitary laws for contagious diseases are more difficult and intricate than for non-contagious. If we succeed against contagious we are almost sure of success against non-contagious.

2nd. Leprosy was a typical contagious disease. Succeed with it and we shall with others.

3rd. The hygienic laws for contagious diseases are only those for other ailments intensified.

4th. Having shewn thereby that the hygienic is the most important branch of medicine, and the best mode of combating disease, He teaches this, its most difficult branch, leaving mankind the task of applying it to non-contagious diseases.

5th. The Supreme suggested and initiated the study of disease-prevention, that is hygienic or sanitary science and practice; by attacking its worst branch, the prevention of contagious diseases; and testing its efficacy on one of the most prevalent, stubborn, and loathsome of the contagia, viz., leprosy; with which the Hebrews and the then known world were most familiar, and on which He could best practically demonstrate the efficacy.

The law of the leper was thus revealed with a multiform object in view:—

a To free and keep free the Hebrews from the disease, no doubt contracted in Egypt and prevalent among nations among whom they were to mix or travel; a horrible disease, though apparently the only contagious affliction of that day.

b As a lesson; and through the Hebrews to other peoples, and for all time: not simply to cure the disease, but to anticipate and prevent it; the reason for this; and how to do it. How to treat and stamp out not only this but all other contagious and infectious diseases; even the far more infectious and contagious ailments with which we have to contend at the present day; nay, disease in all of its numerous hydra-headed forms.

c To shew the Israelites and the then present and future worlds the great importance of hygienic measures, especially cleanliness, both personal and public.

d To shew them and all mankind the correlation and interdependence of purity of body and soul; the great importance to mankind, both individually and collectively, and supreme import the Almighty puts upon both, especially that of the soul.

We are too apt to forget that Jehovah, our guide and preserver, as well as our creator, gave Man, through Moses, not only the model moral and spiritual law or Decalogue, which civilized nations now obey, for his guidance; but also other codes for adoption either purely or in a modified form for other departments of life, and among these a medico-hygienic or health-

code; which, though not so important or complete as some of the others, is still very valuable and eminently suggestive.

The forethought and prescience that ordained the medical training of Moses in his earlier days are now apparent. The delivery of the law of the leper caused his medical knowledge to come into the fullest recognition:—

1st. In remembering and accurately putting these laws into writing; but especially

2nd. In carrying them into practical effect.

3rd. In teaching the Hebrew Priests and Levites sufficient medical lore to enable them to help him, as the elders did in Judicial, and the princes and captains of tribes did in military and camp matters, to carry those hygienic laws into effect; while he himself attended to weightier matters pertaining to his almost superhuman and many-sided task as Hebrew leader.

Therefore, while we praise the superlatively prescient and far-reaching hygienic work of Moses, that stamps him as a highly-talented medical man and as "learned" in this as in other departments of the lore of that early period, we must not forget that in him, the medium, transmitter, and scribe of these codes, we are really lauding the Divine Originator and Author not only of this hygienic portion but of the entire Mosaic law. All that Moses wrote in the Pentateuch beyond the narrative of the Exodus and the Wanderings, was revealed, Divine, and God-bequeathed, through him to the Hebrews, and through them all mankind of the future. But the different revelations were received by an exceptionally cultivated, talented and receptive mind; specially raised up, led, taught, and trained for the memorable and momentous purpose. The medical and hygienic seed-thoughts implanted by the Divinity fell on a brain and into intellectual soil, which at once recognised and appreciated the value, widespread utility, application, and lasting issues of the new ideas: and therefore took especial care both in the literary transmission and practical application of the Heaven-bestowed revelation. Providence occasionally permits one master-mind to divulge some great and new thought or fact in philosophy, science or art. Occasionally it permits him to divulge several. But to no man yet born besides Moses has the honour yet been reserved of being the medium through which a series of codes came, each crystallizing a mass of the deepest, newest, and most valuable truths and most Divine wisdom. After all, are the brain work and the discoveries of any intellectual man of note in any department of knowledge, philosophy, science, art, or literature, self-generated? Are not all talented men, like Moses, though unwittingly, God's "servants," in being the receivers and propagators of information new to the world, each in his own special

sphere? "Every best gift and every perfect gift are from above" (Jas. i. 17). It is in "Thy light that we shall see light" (Ps. xxxvi. 9). God's Holy Spirit has been at work of this educational kind ever since He helped to make Man in God's image (Gen. ii. 20).

Jehovah delivered this law of the leper and the entire Mosaic sanitary code, not like the all-important and central spiritual and moral code on Mount Sinai; but, like the ceremonial, social, criminal, and judicial law in the secrecy and quietude of the Holy of Holies; its transcription and insertion in the Pentateuch being, like these, begun with the usual words, "and the Lord said unto Moses" (Lev. xiii. 1). Like them it is therefore not the personal and original production of Moses, but is wholly God's law. Moses, however, received and transcribed it as he did the entire code which goes by his name (Deut. xxxi. 9): and delivered it to the Priest-sons of Levi. These, at the end of every seven years at the Feast of Tabernacles and year of release, when the land rested from cultivation and the people had the leisure of a comparative respite from labour, had to read the law before all Israel, who had to assemble at a place chosen by God. This "law of the leper" and other hygienic laws were necessarily included and not omitted from this reminiscent and educational reading. And to it, as to the entire law, God's warning against disobedience equally applied. "See I have set before thee this day life and good and death and evil; in that I command thee this day to love the Lord thy God, to walk in His ways, and to keep His commandments, His judgments and statutes; that thou may'st live and multiply; and the Lord thy God shall bless thee" (Deut. xxx. 15-16). And for disobedience and ignorance there is no excuse, "for the commandments which I command thee this day is not hidden from thee, neither is it far off. It is not in Heaven that thou should'st say who shall go up for us to heaven, and bring it unto us that we may hear it and do it; neither is it beyond the sea, that thou should'st say, who shall go over the sea for us and bring it unto us that we may hear it and do it. But the word is very nigh unto thee in thy mouth and in thy heart, that thou may'st do it" (Deut. xxx. 11-14). And, again, "for it is not a vain thing for you; because it is your life: and through this thing ye shall *prolong your days* in the land whither ye go over Jordan to possess it" (Deut. xxxii. 46-47). So that the medico-hygienic laws of the Pentateuch may be regarded in the same light as the moral, spiritual, and other codes, and deemed not only perfect, preventive, eminently wise, beneficent, comprehensive and far-reaching, but also inexorable. Enquiry will shew that they should be similarly looked at by mankind generally as of the greatest practical value and both of world-wide and time-long application; although so

long neglected. And that, like all other parts of Scripture, God's laws generally, the Mosaic code in its entirety; so also the law of the leper was given by inspiration of God, nay, in Jehovah's own words, and is "profitable for our instruction and correction" (2 Tim. iii. 16). Both medical men and Divines may glean much information. Nor need any nation or race be ashamed to learn therefrom, or afraid to take the advice therein offered. Nothing the Deity does becomes antiquated or obsolete. His laws are perennial and eternal. Nor can any individual or nation claim that they keep God's commandments with their whole heart if they neglect these His health laws.

Though God's Holy Bible is, humanly speaking, ancient, it is and always will be God's Word, and thus can never be obsolete. Nor can His laws alter through all the eternity of the future, far less in the brief period we call time; seeing that though only recorded on earth about 3,000 years ago they have existed for the whole of the eternity of the past. They are not past, but ever modern and perennial laws. Laws that will last as long as Man exists. Made and codified by God they can never be either cancelled or annulled by humanity. If ignored mankind will, sooner or later, be punished by disaster and disease. This fact the study of medicine and medical history shews: and the story not only of repeated epidemics; but the history of non-contagious diseases. As well as the history of human hygiene; a study tardy in its development, because God's hints bequeathed in His law of the leper have been ignored practically for ages, even by sanitarians, who preferred their own primitive ideas to the far-reaching and deeper hygienic hints of the Almighty.

God does everything systematically. His laws are eminently laid down according to rule. And He ever works with definite ends in view. In the instance of the hygiene, and through the entire Mosaic code, He aims to promote His knowledge, praise, glory, and service among men. Hence even disease had its sacred relations arbitrarily imposed. And the Hebrews were reminded in this way by the infliction of disease or its avoidance that they were God's peculiar people, individually and collectively. So their time, food, clothing, fields, persons were all touched by ceremonial and regulated by laws. In like manner so were their health and even their ailments. All things were referred to Him in whom they, like ourselves, "lived, moved, and had their being" (Acts xvii. 28).

From an archæological point of view a medical study of the Mosaic hygienic code, especially the hygiene of disease, is of exceeding interest, because it shews that though very ancient it is neither antiquated nor obsolete nor worthless, but in some respects pioneer and anticipative. We cannot say as much for the human knowledge of the same period. As with the Egyptians

at Heliopolis or On, the school in which Moses was instructed; so with the Hebrews, those Priests who inspected and looked after the lepers or the suspected, were doubtless those who shewed a special aptitude or liking for medical work, and by Moses' permission and under his tuition, gave their chief time to this study and duty.

The wisdom of the Mosaic law of the leper will be exceedingly apparent after the preceding systematic outline; and what has already been specially said. From these it will be recognised that hitherto therapeutics have done little even in modern times either to cure or stamp out this most intractable disease. And that the most efficacious means yet followed, even in recent times, have been hygienic and preventive; especially isolation, cleanliness, disinfection, &c., that is the ancient Mosaic plan.

A perusal of the foregoing pages will also render apparent the appropriateness of making leprosy a disease typical of sin. These two correspond in insidiousness, tenacity, loathsomeness, intractability, prevalence, universality, and demoralizing results. But they differ in one essential point, namely, that whereas comparatively few of the total world population at any one moment have body leprosy; how few, alas, are wholly free from that typical leprosy of soul we call sin. And though the Heaven-bequeathed hygienic rules for preventing and curing body leprosy are very apposite; how much more complete and efficacious are those given for preventing and curing soul leprosy or sin of the soul: a matter of vital and eternal, and not like the former of merely temporal importance.

Thus a contrast of the Biblical with modern hygienic methods will shew that the inspired Mosaic hygienic code, especially the law of the leper; bequeathed to the Hebrews considerably over 3,000 years ago; and inferentially to the whole human race then living and to come, antedates, anticipates, and is in advance even of modern medicine, in some respects actually, in others suggestively, in more than one most essential and practically valuable particular: most of which have not been recognised or followed till well within the present century. Mankind has thus failed to notice or avail themselves of Divine information and heaven-sent hints; and has preferred its own errant, shallow, humanly reasoned knowledge to God's eternal, comprehensive, and infallible wisdom. And it seems almost incredible that the Mosaic sanitary system, a complete code in itself, should have lain crystallized and embedded in the Pentateuch, undervalued and almost unknown, even to the medical profession and the savans who have attained earthly immortality by and through the study of medicine.

The hygienic law of the Pentateuch long since pointed out:—

1st. A fact not known till long after, namely, that there is such a thing as infection and contagion, and such diseases as infectious and contagious ones, which engender and propagate and spread each other on by a subtle something, once supposed to be gaseous or fluid, but which we now know to be caused by living microscopic and vegetable germs, which pass from the ailing to the sound, into whom they find entrance by the skin, that is by contact or contagion; or by the air, finding their way by the lungs and breath or by the food and stomach. The disease by which the Pentateuch illustrates these is the ailment then so prevalent and dreaded, namely leprosy, very familiar to the Hebrews during their Egyptian bondage.

2nd. So also the Pentateuch pointed out the prescribed and best mode of meeting leprosy, one of the most chronic, obstinate, loathsome, and infectious of diseases. And in so doing inferentially pointed out the best mode of meeting all other varieties of infectious and contagious diseases; both acute ones, like the eruptive exanthemata, and chronic ones like phthisis, namely, by preventive measures, that is hygienic or sanitary methods, rather than by less satisfactory curative plans.

3rd. So in like manner the Pentateuch inferentially hinted the best mode of dealing broadly with non-infectious and non-contagious diseases of all kinds, acute and chronic, both general and local; viz., by hygienic, sanitary, or preventive methods, in preference to less satisfactory curative ones.

4th. So also the Pentateuch first pointed out the wisdom and necessity whenever infectious and contagious disease was present, suspected or imminent, of early medical inspection of the ailing one; so as at once to certify the disease, and, if necessary, segregate it. This was effected by the Hebrew Priest doctors. Then:—

a If the case were sound the individual was at once freed.

b If suspicious they were remanded and kept aloof.

c If truly infected and ailing they were at once isolated until deemed "clean" by the examining Priest: no matter whether the isolation lasted for weeks, months, or years.

By this careful periodic expert examination, whether voluntary or compulsory on the part of the people, care

was taken to prevent or rectify mistakes in diagnosis; and such minor ailments or pseudo-diseases for being taken for the true malady, with its annoyances and restrictions: and also of the true disease being overlooked, deemed trivial or secreted, to the danger of the entire community. Thus the length of isolation was not invariable but according to the necessity for it.

5th. The Pentateuch also pointed out the value of and insisted on isolation of the infected and even of the suspected, in infectious and contagious diseases, as one of the surest, easiest, and speediest modes of checking the spread of disease from the infected to the sound, in tent, street, Tabernacle, camp or community. It was lepers who spread disease where none previously existed. Isolate the germ-factory and no new cases can arise among the healthy. Every leper, male or female, rich, noble, or poor (Deut. xxiii. 10) had to be put out of the camp, that is beyond the regular community, but not out into the desolate wilderness: the reason given being "that they defile not their camp in the midst whereof I dwell" (Numb. v. 1-4). So also lepers doubtless had a place apart from those otherwise ceremonially unclean but extradited. The leper "shall dwell alone" (Numb. v. 2) lest he might infect others. In some Eastern countries there are still separate houses and even villages for lepers. This regulation was strictly enforced, even in the case of Miriam (Num. xii. 6) and King Uzziah (2 Chron. xxvi. 19-21; 2 Kings vii. 3; Luke xvii. 12). New cases of leprosy were thus prevented:—

a By keeping the healthy away from the ailing or the infected. But Moses did not fall into the error of an invariable forty days' quarantine; but made it as long or as short as necessary. This separation of lepers from sound persons to avoid the possible transfer of disease germs, inculcated disease prevention, both public and private.

b By disseminating, scattering, diluting, and starving out the disease germs as fast as they are thrown off from the ailing individual, in two ways, thus:—

1. By exposing them to the purest air containing the highest percentage of oxygen and ozone, both potent germicides.
2. By exposing them to the most in-

tense light, another most potent sterilizer.

The Hebrew code given at Sinai was a complete innovation on the established medical custom of that day; and far ahead of the later medieval custom. Outside the camp the true lepers and the suspected doubtless had each their specially selected locality and their own tents; corresponding to the medieval lazarets and quarantine stations; and to our more modern hospitals for the exanthemata. When a leper approached a clean individual he was compelled by law to warn the latter to avoid him by crying "unclean, unclean." Just as the Hebrews were kept practically isolated in the Desert from other nations, to keep them spiritually, socially, morally and physically uncontaminated, free from the leprosy of sin (idolatry, licentiousness, &c.) and from the pathological contamination of body leprosy; so the Supreme simply and with the most logical reasoning extended this principle of isolation between the leprous and the sound. If the former by any chance happened in their midst it was to be expelled and isolated to thus prevent its further extension. To cherish an undefined horror in the mind was perhaps the primary object of isolation, as this begets the secondary definite dread of contagion. So the penalty of uncleanness was imparted rather to engender the fear of contagion than in order to check actual contamination in this disease, one of slow contagious power.

6th. The Pentateuch first pointed out the great value and indispensability of disinfection and purification or cleansing appliances in contagious and infectious diseases. This ordeal of purification, combined with isolation, implied special Divine discipline and physiological hygiene; thus:—

a Of infected or suspected persons by repeated ablutions of the body to cleanse it and free it from cast off disease germs; the disease being often largely a skin ailment.

b Of leprous or suspected clothing, by freeing them from and killing disease germs by means of frequent washing, and, if necessary, destruction by fire. Heat and fire are still our two most certain disinfectants. Various and repeated washings and purifications of the body, houses, utensils, clothing, &c., inculcated

habits of excessive cleanliness in all things; each and all sanitary in their aim.

c Of leprous bedding, &c., by similar means.

d Of purification of leprous or unclean houses, by scraping off the internal plaster and mortar of walls, &c. And, if necessary, by total demolition of the building and its complete destruction by fire.

7th. Moses had not only an unmistakeable knowledge of disinfection and probably of antiseptics and their true explanation, derived primarily from his Egyptian-learnt chemical knowledge; and secondarily and chiefly from inspiration: but also of the then most available and acceptable kinds. True, he does not give the why and the wherefore; or pen for the Hebrews or the nations and medical world of the future, full reasons for using them; as that would have been useless to professionally illiterate minds. In the Mosaic hygiene we find thus early selected and made compulsory those which are even now deemed most efficacious, or are only now beginning to be most valued and certain for the abolition of infection; all moreover being of Nature's bountiful provision: cheap and universal, and so common as to be overlooked and often despised. These were:—

a Burning by fire and heat; two of the very best, surest, and safest disinfectants; by which all minute infective germs or spores are at once and perfectly chemically destroyed and converted into innocuous matters, solid or gaseous (Lev. xiii. 52). Leprous clothing had especially to be burnt, because, as everyone knows, clothing attracts and retains unpleasant odours and the germs and spores of infectious and contagious diseases (Numb. xxviii. 7-8). So also the skins, carcases, &c., of sacrificed animals were not allowed to remain where slaughtered; but had to be thrown without the camp, that is far from the people who would be injured by putrefaction. Outside the camp, moreover, they were not allowed to remain, but had to be burnt with fire; that is totally destroyed by the best of all chemical disinfectants (Lev. ix. 11).

b Common air, another of the best of disinfectants; which acts:—

1. By its oxygen, its ozone, and its light, all of which:—

a Slowly kills or decomposes and changes the virus into something else less deadly or innocuous.

b Or dilutes and removes the virus by dissemination; thus making any given bulk of air contain less of the poison and thus causing less chance of infection by the breath. The motion of the air gives no time for the germs to settle in the form of dust for germination. Disease germs flourish best in stagnant impure air; and far less in air oft or constantly renewed by ventilation. They are of many varieties, according to the malady, &c. Each disease has its own special variety. Till they get into the human body they have two forms, namely, the active or contagium vivum and the dormant or contagium dormans.

c Burial in common earth, one of the surest of all disinfectants, was first pointed out by the Pentateuch. This acts by chemically decomposing and ultimately rendering inert the disease germs, by killing them, or at least isolating and holding them so that they cannot get into the air and find a human nidus or soil on or in which to settle and germinate. Thus, also, the formation of new germs is prevented in an unfavourable environment. Microbes vary greatly in vitality. Some, for example those of yellow fever, are so intensely vital that they resist even this; and still remain virulent after lengthy burial. The wisdom of "going abroad" from the camp, and of "covering up" will be evident from this Mosaic law; even among healthy persons; and still more among lepers. Thus was excreta disinfection and destruction assured: and with it that of the contained disease germs and their still more minute and obstinate seeds or spores.

d Water; another of the best disinfectants was

also first pointed out by the Mosaic law and used by the early Hebrews. This element, bland in itself, carries away, dilutes, and disseminates these infectious poisons. There are fewer in any given bulk: and there is thus less chance of infecting whoever touches, washes in, or drinks it. Certain deadly disease germs, *e.g.*, those of cholera flourish and become more potent in stagnant and therefore impure water, like that of tanks: and the reverse in running streams, that is pure fluid. Hence why water was so often commanded by the Mosaic code to disinfect and purify the human skin, clothing, utensils, bedding, &c., among the Hebrews of the Exodus.

8th. The Mosaic hygiene thus also pointed out earliest the immeasurable and indispensable value of a most careful personal or private hygiene in infectious and contagious diseases, by inculcating:—

a Great individual cleanliness, frequent ablution of the entire body, &c.

b Avoidance of leprous persons by healthy ones by wise warnings.

c Going "abroad" and covering this with decomposing earth.

d The removal of the beard was a part of the ceremonial treatment of a leper (Lev. xiv. 9). This was to hygienically wash away or destroy disease germs, attracted by and apt to cling tenaciously to hair.

9th. The Mosaic hygiene also shewed thus early the great value of an unusually careful public hygiene, to cope with and expel contagious disease. Thus:—

a Cleanliness of the Tabernacle, camp, streets, &c., were enforced by careful and speedy removal of carcasses and sacrificial debris, out of the camp; and also their total destruction there by fire, to prevent putrefaction, decomposition, the generation of disease germs by furnishing these with a suitable nidus.

b Compelling public resorts out of the camp; covering up excreta with common earth being compulsory on all. When deposited in the camp excreta had to be instantly removed beyond it; which prevented putrefaction decay, bad odours, germination of bacteria,

and thus preventing the early and occult stages of leprosy from developing to infect the sound. Ex-camp lepers doubtless had their own special resorts that were shunned by sound persons, as those for the latter would be by lepers. Thus in both cases instant earth disinfection was accomplished. This law was also enforced in the 14th Century, almost wholly for the plague, as it was many centuries earlier in Mosaic times for leprosy.

10th. Although it does not expressly, the Mosaic law inferentially forbids marriage between lepers and the non-leprous; by the code which inexorably forbids the latter from touching or even approaching the former. This necessarily prevents one person from contracting the disease in this way, or the resulting offspring from direct infection, and also the resulting hereditary weakness or tendency to contract it. There can be no doubt that a family predisposition to leprosy may be inherited or developed thus, as it can to other ailments, such as tubercle, gout, &c. In this Mosaic clearly anticipates secular methods by centuries.

11th. The segregation of lepers by the early Hebrews was also an anticipative precaution. This implies their exclusion not only from the camp, tabernacle, and assemblies, but also from bartering, cooking, and all the ordinary social, domestic and commercial offices and functions. The sound and the leprous colony dwelt wholly and exclusively apart; a rule from which Miriam and kings were not exempt.

12th. Even in burial lepers and the sound were parted, no matter what their rank; a clearly wise and anticipative precaution of Mosaic times. The wisdom of burying all exanthematous, contagious and infectious dead apart from healthy bodies; or of cremating them; especially the most virulent types, such as yellow fever, plague, &c., has often been mooted in modern times; as it would destroy or at least isolate their subtle germs more effectually than burial in public graveyards.

These segregations, repeated purifications and washings after leprosy, together with their accompanying sacrifices, as for the purification of the leper (Lev. xiv. 12) or the polluted Nazarene (Numb. vi. 12), were both ceremonial and devotional, as well as physical or bodily. They inculcated hygiene of the higher nature; leprosy, for example, being regarded as an expressive token of sin; its removal being to be accompanied by

purifying ceremonies and offerings, which united expressions of guilt and pollution with grateful acknowledgment of God's mercy. And inculcated:—

1st. Symbolic or spiritual purity and cleanness of soul.

2nd. They were educational and inculcative alike of spiritual and bodily purity, that is they taught and aided the hygiene both of the body and the soul.

3rd. They were physiologically healthy. As the tendency of leprosy is to demoralize the leper: make him careless alike of his personal appearance, habits, moral and social and of his individual cleanliness.

4th. Cold water was sanitary and sanatory, as well as cleansing of the swollen and diseased leprous parts.

5th. So also the ceremonies of the restoration of the leper to his place as one of God's people, bear a strong resemblance to those of consecration to the priesthood in modern times (Lev. xiv. 10-32).

How prior and anticipative these laws of the Mosaic code, penned over 3,000 years ago, and carried out strictly and practically by the Priests acting under Moses are, and how closely they agree with our modern secular ideas, will be seen by comparing them with the following rules and suggestions regarding leprosy of the present day, by the medical members of the latest leprosy commission (1893): shewing that, as in Mosaic times improved hygienic and social conditions tend to diminish this dire disease by reducing the number of the susceptible. Hygienic care of the healthy prevents more occurring. Hygienic care for the leprous tends to aid in curing what has already occurred.

1st. Lepers and leprous colonies should be medically supervised.

2nd. Segregation and isolation of lepers should be enforced. This should be complete and not partial; compulsory and not voluntary; and in leper tents, farms, asylums, colonies, or private homes.

3rd. Leper marriages should be permitted; as this does not tend to increase but rather to diminish the evil and helps it to die out. Thus:—

a Leprosy diminishes the procreative powers.

b It causes relative sterility.

c It causes a comparatively high mortality among the children.

d While it only engenders a slight specific hereditary predisposition to leprosy among the children born of leprous parents; that is all those are not necessarily born leprous, nor

do they subsequently become leprous, but only a very small number.

e The cases of congenital leprosy are rare or nil; that is there is little or no hereditary predisposition to the disease.

4th. Lepers should not be allowed to handle or sell food or drink, clothing, &c.; that is they should be strictly prohibited from touching and infecting these, and thus spreading the disease. Nor should they be employed as barbers or warehousemen. Prostitution, begging, using public conveyances, and frequenting public places should be forbidden to lepers.

5th. Legislative authority should enforce this until medical sanction is given to annul the quarantine.

Thus it is that in the Pentateuch of old the beneficent Creator taught mankind didactically and suggestively laws and lessons of great medical value, which they have long neglected; and have had to grope darkly after for over 3,000 years, till at last they arrived not at different but at identical conclusions regarding leprosy, by their own slow and uncertain and unauthoritative methods. Can clearer evidence of early priority be given. Can the advice of old be stronger or better; or the giver more credible than He of the Mosaic law? The ancient Hebrew and the modern leper laws thus agree perfectly in every one of their deductions. And the latter, both theoretical and practical, instead of refuting only endorse the depth and wisdom of the former. Indeed, the Mosaic law is written on the lines, and might have been taken as the guide for the conclusions of the leprosy commissioners; only the Mosaic findings are the more complete of the two. In one point only do they still disagree; that is regarding the contagiousness of leprosy. Some medical minds still think leprosy non-contagious. But the greater number, and all of the most eminent modern medical authorities agree with the Holy Bible in deeming it contagious. All this goes far to prove that God's laws, utterances, and decisions cannot be refuted, annulled, or amended. And we are wise when we fully and without cavil accept and act on His truths or their clear inferences. Biblical decisions ought always to settle disputed points of every kind. The above conclusions are only what the Holy Scriptures have been so long inculcating; and the controversy between secularists and the Bible in this as in many other points, will surely and certainly end at last in the full endorsement of the infallible Book and its omniscient and all-wise Author. Why the Creator did not, through His servant Moses, divulge for his and Man's subsequent use, more of the secrets of medicine, especially of its curative branch, for example the best mode of treating leprosy by wise medication,

in addition to pointing out the best method of preventing it, we have no means of judging; any more than we have of knowing why He gave us no deeper insight into the arcana of astronomy, the spirit world, life, and many of the manifold mysteries of our own being that Man would fain know, but which He has, doubtless for some wise and just educational reason left us to find out, if we may. As it is, we can only be grateful for the profound hygienic hints and laws we have received; and regret that we have not sooner recognised, acknowledged, and acted up to the invaluable bequest. Let sanitarians not forget that many hygienic conclusions, apt to be deemed and spoken of as modern findings, have not unfrequently been long since pointed out by the Holy Bible.

In their entirety these Mosaic medico-hygienic laws, especially those regarding that dreaded disease leprosy, were no doubt closely followed by the Hebrews during the Wanderings and their earlier occupancy of Canaan. But the Hebrew story shews how soon they forgot God, His benefits, and His laws. And as they degenerated and by degrees left their heavenly allegiance; and began to disobey not only the hygienic but the entire Mosaic code; so they no doubt gradually fell away from obedience to the law of the leper, to their own detriment and the early and rapid recrudescence of leprosy. In the end even Kings, like Uzziah, were smitten. And in the Bible story of Naaman, the Syrian, we have an interesting glimpse of the disease among outside nations, where it was still more prevalent than among the Hebrews. If God's chosen people so benefited when taught and aided by Him, yet forgat Him and His laws, and so became corrupt, need we wonder that both God's Word and His laws were likewise and still more neglected by those Gentiles who had less opportunity of knowing them and perceiving their worth. And, among these, that of hygiene. Or that the whole world lost complete touch with hygienic matters till at last it became unknown during the dark and the Middle Ages; and even until it has only lately and during the present century begun again to be recognised and followed.

To non-professional minds many of the minutiæ of the law of the leper may be deemed especially trivial and even superfluous. But they will not to the professional man. Modern physicians are daily finding out that it is impossible to be too careful or minute in all that concerns the exanthemata or eruptive infectious diseases; often subtler than the most astute mind that can be pitted against them; and that often baffle all human skill and ingenuity to prevent their inroads, check their spread, or oppose them till they die out. In modern times we should strictly obey the laws for opposing and stamping out contagious diseases generally; those signallized by Moses in-

cluded: since many of them are even more necessary for the fulfilment of our purpose than those for leprosy. As for the latter no advice can surpass the Biblical "take heed in the plague of leprosy that thou observe diligently and do according to all that the Priests and Levites shall teach you, as I commanded them so shall ye observe to do" (Deut. xxiv. 8). The Mosaic laws for leprosy, the chief or only contagious disease of that era, at least among the Hebrews, are model rules, and equally applicable for the leprosy of the present or the future; or for contagious diseases generally. Only, for the acute contagia, *e.g.*, the eruptive fevers, they are all the more applicable and stringent, because these are so much more subtle and infectious than the more chronic leprosy and other catching ailments of similar slow evolution, such as phthisis, hydrophobia, tetanus, &c. If we criticisingly cavil at the entire Mosaic code, it must be remembered that we thus disparage, not the work or the genius of Moses, but those of Jehovah. Nor should we of modern days forget that, though from a human point of view ancient, the hygiene is included with the rest of the Mosaic code in the Psalmist's decision; "the law of the Lord is perfect, and makes wise the simple" (Ps. xix. 7). And also with that of Moses, "for it is not a vain thing for you; because it is your life, and through this thing ye shall prolong your days in the land" (Deut. xxxii. 47). The Mosaic law is not merely figurative; nor is it spiritual, moral, social, political, and commercial only, but also and strictly of physiological, hygienic and medical application. The entire Mosaic code was bequeathed for the general not the partial education of mankind. To ensure this it must be accepted and followed in its entirety. The medical profession ought to accept and act upon their own special portion.

A study like this will suffice to shew that our modern secular searchings after hygienic truths and sanitary facts of antiquity, in this highly practical age, we are only now becoming educated up to and have yet barely reached the Mosaic standard in certain hygienic matters; and, moreover, that, with all our supposed superior wisdom and advanced knowledge, we are still only following out what were the plain and popular Mosaic sanitary laws of 35 centuries back. We thus find that Jehovah, with His infinite and unsurpassed sanitary wisdom fully and clearly anticipated, antedated, corroborated and endorsed, our modern professional conclusions; our deductions, unskilled and often crude gropings in hygienic darkness; when He, 35 centuries ago, enumerated the most valuable sanitary information and important hygienic laws that it should clearly have been Man's interest, honour, and glory to receive, and his highest virtue and intelligence to instantly follow for the sake of human health,

life and happiness; as well as to form a basis for the increase and perfection of human sanitary knowledge, such as these sublime maxims, commands, and laws, were abundantly fitted to supply; and thereby would have prevented that deep intellectual medical darkness of all those years.

At the same time, although the Mosaic hygiene was not annulled in its entirety by Calvary and the new Christian dispensation, any more than was the Decalogue or the entire law of Moses; still a distinct portion, though from a sanitary point of view, only a comparatively unimportant part of the hygienic law has been annulled and rendered obsolete thereby; namely, that part of which the Decalogue poor, criminal and other laws and all the other codes have since been similarly stripped, and that for the same cause; namely, the typical, allegorical, figurative, symbolic, ceremonial, or emblematic. This includes the sacrifices, atonements, and ceremonies of different kinds. Shorn of these, the main and true Mosaic hygienic law, the hygiene of God, creation and human nature, made by Jehovah, and by Him delivered to Moses in the Holy of Holies, remains as intact and obligatory, as lasting and as sure as ever. This is one of the most important of Nature's laws, devised by the Deity, and revealed not for the Hebrews alone but for humanity. The numerous sacrifices, oblations and other observances, necessary under the Mosaic dispensation to prevent or cure disease, are no longer necessary or obligatory. For example, in modern times we never compel lepers as the Hebrews did theirs, while deeming it an important and preliminary item in the Divinely-aided cure; to

1st. Rend their clothes.
2nd. To go bareheaded.
3rd. To cover the upper lip.
4th. To cry unclean, unclean, as they walked along.
5th. To make sacrificial atonement by killing one bird, sprinkling a second with its blood, cedar wood, hyssop, and scarlet; and then letting the bird go free.
6th. Or offering a he lamb, with fine flour and oil as a trespass offering.
7th. Or sprinkling on the lepers right ear.
8th. Or on his right hand thumb.
9th. Or shaving him and pouring oil on his head.

All of these ceremonial and typical rules and observances necessary for the prevention and cure of this disease are now abrogated and unnecessary, because purely Hebraic, temporary and in no sense medical or of the slightest sense of hygienic significance, efficacy or virtue.

But, as regards the true fundamental medical factors of hygiene we strangely enough find the evolution of modern

secular hygiene, after 3,500 years of study and struggle, has laboriously arrived at conclusions identical with those of the Holy Bible; inasmuch as they insist on very much the same rules for the treatment of leprosy that were obligatory on the Jews of the Wanderings and of Judea, in compliance with the Mosaic hygiene and the law of the plague of leprosy (Lev. xiv. 54). For example, both Mosaic and modern hygiene inculcate:—

1st. Periodic skilled *inspection* for prognosis and diagnosis.
2nd. *Isolation* of variable duration both in the dwelling and from the community.
3rd. Excessive *cleanliness* of the infected person, clothing, bedding, food, drink, household utensils, &c.
4th. *Disinfection* by washing and re-washing the body, clothing, bedding, &c.
5th. *Germ-destruction* by fire and heat, to eradicate the materies morbi from the leper's garments, bedding and even his dwelling.

We recognise these as in no material sense different from but indeed as practically identical with each other. And other apposite examples might be adduced to shew the close similarity between the Mosaic and modern hygienic routine regarding disease. In fact, wherever any difference exists, or seems to do so, the base and practical part of Bible hygiene will in the end be found correct; as this gives the grand, wide and far-reaching law of Nature, endorsed by Divinity. And, deprived as the Decalogue has also been of its emblematic superfluities, it is as permanent as the latter and as obligatory; although, alas, the latter has, and even more than the hygienic law, has been read to deaf and unappreciating ears for 35 centuries. We no longer have to sacrifice for leprosy; but the isolation, cleanliness, &c., meant to help in the cure and preventing the spread of infection, are as much required as ever both by Jew and Gentile. The now obsolete typical portion of the Mosaic hygiene, like that of the Decalogue and other codes, was only temporary, educational and instituted for a special elevating and developmental purpose, to prepare man for the more comprehensive and higher Christian dispensation of many centuries later. And, as we no longer atone sacrificially for breaking the various sections of the Decalogue, or the criminal, land and other laws; so in like manner we no longer need to sacrifice either for the promotion of health or the prevention of leprosy or any other disease. But, curtailed thus, of its ceremonial additions, the Mosaic hygiene ought to have been, and should now form the basis and foundation of all systems of hygienic and sanitary science.

The Mosaic hygienic law, in its widest sense, was thus a revelation from God of the best method of restoring and pre-

serving the health and happiness of Man's soul and body, mind and heart; as well as the health, happiness and prosperity of the world as a human abode. It thus embraces codes for the individual soul and body, and for the entire community; laws to promote Man's present earthly and his future eternal happiness. The former combines the Ten Commandments; the second the Mosaic hygienic code; and the last the civil, political, judicial, criminal, &c., codes. The leading principal in all is Theocratic. The sum total is to shew God's love for the human race; His paternal interest in our welfare; desire to help us out of the mire of sin and its results, spiritual, moral, social, mental and pathological, into which the "Fall" has led us; the mode by which Man may by acceptance help himself and may thus obey and please his Maker by keeping His commandments, submitting completely and in all things, temporal and spiritual, to His will and guidance; and, above all, recognising and accepting Christ as his Saviour.

Although all that concerns the health, happiness and welfare of the race has a deep medical interest; we have here mainly to do with the hygiene of the Man as an individual; that is his spiritual and physiological hygiene. The leading principle of both is perfect cleanliness of soul and body. Both are symbolic and emblematic of God's purity. It is required that the dual creature, the soul-enshrined body, should be pure, like his Creator and Sustainer. Both are sacred, since in His book all our members are written (Ps. cxxxix. 16). But this hygienic law indicates the innate tendency of both towards degradation. The basis and groundwork therefore of the hygienic polity of the Holy Scriptures is responsibility, obedience and love to Him as of children to a parent.

a Man is related to the Supreme as created to his Creator and Sustainer.

b Man is related to his fellow-creatures individually and collectively, *i.e.*, to society at large and to the human race as a whole.

c These hygienic laws are binding on all ranks, races, ages, and periods through life.

d The individual and the community are both responsible to their Creator for its obedience.

e As a whole it is absolutely supreme and of unlimited scope.

f Obedience brings the reward of continued life, health and happiness of body and soul; disobedience leads to disaster, disease, misery, and death of soul and body.

g Not one jot or tittle of either shall pass away. There is not and never will be any chance of escape, even if we

desired it. Both must be faced and will be obeyed by the wise.

h With the law, shorn of its emblematic part, in its entirety and fully followed, Man would become like the Israelites when they wholly obeyed, a healthy and happy race. Without it, as by disobedience, Man would become like them when they disobeyed, and also like the pre-Noachian race, full of vice and disease; and would cease to be either holy or healthy.

k The multiple hygienic law of Moses for Man's soul and body, his moral, social, mental and communal conduct, was purely God's device and command and not Mosaic or human. It was of heavenly and not earthly origin; but both human and Divine, earthly and heavenly, in its aims: the soul hygiene having been uttered by God's voice and written by His finger on Sinai; the body hygiene by His voice quietly to Moses for transcription in the Holy of Holies.

m In his entrance into, passage through and exit from this world, Man, both in soul and body, is weak, polluted, dependant, and requires the hygienic help proffered by the All-wise and Mighty Councillor who made him.

The Hebraic ceremonial law, which formed so prominent a part of the Mosaic code; and was the only part of that code that was abrogated, annulled and cancelled by the sacrificial crucifixion of Calvary, consisted of a multiplicity of rites, ceremonies, sacrifices and ordinances. These may either be regarded as a code in itself; or, better still, may be rated as an addition to or graft on all of the other codes; and therefore, strictly speaking, part of them. Like the main code to which it was thus, so to speak, attached the ceremonial law was devised for a particular *phase* of human development, one that combined a high state of depravity and a low state of Godliness. The main *object* of the ceremonial law was to elevate and educate the Hebrews; and to indelibly impress on their minds, hearts and consciences by frequency of repetition of tangible, visible, physical observances that consisted mainly in sacrifices, giving of offerings and oblations, the all-important fact that God, our maker, sustainer, guard, guide and best friend, deserves our fullest love, fealty and service; all best manifested by purity of soul, heart and life: and that His service and the cultivation of religion and obedience to His many laws should form the main objects of every human life. And further, that in every event of human life, whether good or bad, joyous or sorrowful alike, we are one and all dependant on Him, still under His care, and ought to consult, lean on Him and ask His aid or forgiveness in all our troubles. And, furthermore, that even

health and disease come under the same category. The various details of the ceremonial law and their individual purpose were: —

1st. Adoration; the morning and evening incense oblation.

2nd. Thanksgiving; feasts of different kinds, which included offerings of first fruits, animal and vegetable.

3rd. Confession of delinquencies and special sins; spiritual, moral, mental, social and physiological; caused by breaking one or other of the different laws of the Decalogue or some of the other codes. These mainly necessitated different kinds of offerings, burnt and otherwise.

4th. Different offerings for diseases and certain physiological or pathological conditions; as leprosy, childbirth, &c., &c.

As the aberrations of health and the diseases or physiological conditions alluded to in the fourth group as necessitating sacrifice and other typical ceremonies; must have been very frequent in a mixed camp of over two millions of men, women and children; the sacrifices, not perhaps for disease alone, for they were miraculously kept from that, but from frequent ordinary physiological conditions familiar to women and men, putting entirely aside those necessitated by aberrations of other laws, must have been exceedingly frequent. Indeed, these medico-ceremonial sacrifices were probably more numerous than those necessitated by all other aberrations put together, including even those of the Decalogue. These hygienico-medical sacrifices and typical observances, however, like all others for other Mosaic laws, were one and all annulled by the Crucifixion on Calvary and the installation of the Christian dispensation. And so just as we no longer sacrifice as a part, penalty and atonement for stealing or lying, slander, murder, neglect of parents or irreligion, so no more do we for disease or for semi-morbific conditions. We no longer adore the Deity by incense-burning; but instead send up the sweet smelling savour of loving and grateful souls. For spiritual, moral and social delinquencies the only sacrifice that God requires is that of a broken and a contrite heart. We no longer keep the Hebrew feasts; and though we make the far more important ones of Christmas and Easter solemn occasions; even these are not strictly compulsory: nor do we celebrate them by ceremonial observances and sacrifices like the Jews, but merely dedicate them by heart and soul-worship, that is an offering of love and fealty. In short the entire typical portion of the Mosaic law as a whole; its rites, ceremonies, and sacrifices, which were wont to encumber every one of its codes, is no longer observed, because no longer bind-

ing or necessary. So likewise these are no longer deemed necessary in our pathological or physiological economy; nor are they for the many and important aberrations of health that we term disease, whether that be leprosy or not. But, on the other hand, the hygiene of these conditions, strictly so called, is not, never was, and cannot be annulled: but necessarily remains in as full force as ever, and as potent as when first created on the occasion of the advent of the primitive pair on earth: and both as binding and as punitive when broken as when, long after, specially and beneficently revealed to our ungrateful and unappreciative race at Sinai.

Therefore, although we respect and revere the typical and ceremonial part of the Mosaic law, because it was God's work and one of His temporary ordinances, and because it formed part of our earthly education and the indoctrination of the soul and mind in religion and in spiritual, moral, social and hygienic matters, as well as other subjects relating to our human conduct and advancement; still we no longer follow it, because the necessity for its continuance ended with Calvary, where the Deity thus cancelled it.

For the same reason, though we revere the typical part of the hygienic law of Moses, we neither follow nor advocate it longer. Nor do we now perform its oblations, sacrifices, sprinklings, its scape-goats and its multiple ceremonies. But, on the other hand, we still not only advocate and follow, but also deem it implicitly necessary to follow all those rules of the Mosaic hygienic code which are, strictly speaking, hygienic; such as isolation and cleanliness; and that because they are essential items both in the prevention and the cure of disease. We do this not only because human or secular hygiene has taught us that this practice is right; but, above all, and chiefly because the Divine hygiene of the Pentateuch inculcates this also: and also because we do not forget that hygiene, like all other sciences, is only the elucidation by mundane minds of God's, that is the Author of Creation's or Nature's works, forces and laws: and that of these the forces and laws of hygiene are merely a portion, though to mankind generally a most important one.

There is not one of the strictly-speaking hygienic rules and observances inculcated by the Mosaic hygiene that is not as necessary and indispensable now, not only for the Jews but also for the Gentiles and all mankind, as they were when delivered from Sinai. They are not obligatory in the Mosaic and Hebrew sense, that is according to the Hebrew dispensation. But they are still wise and imperative as part of the hygienic law of God and Nature; the great and universal laws of health and life-preservation and disease-prevention; laws which need no

sacrificial additions to aid them, and no accompaniment except that of the strict and willing obedience that springs from love, both to the beneficent law and the fatherly loving Law-maker; who in His wisdom not only gave us bodies, but has also bequeathed rules to teach us how best to care for them: who has not only given us souls and hearts, but has also taught us how best to aid their highest interests; who not only gave us children and friends but also taught us how to hygienically help them: who gave us many worldly pleasures and sources of happiness, but also taught us how to wisely and hygienically utilize, tend, train, and watch over these. All this Jehovah did when He bequeathed the Mosaic law, which in its great aim is mainly hygienic and preventive throughout, and not so in its medico-hygienic section only.

Medical and hygienic history, like general history, repeats itself. For, just as Noah preached, taught, expostulated, and warned alien and errant humanity of his day unavailingly for 120 years; so the Holy Scriptures have been similarly pointing out the great fundamental facts of hygiene, and also many of its more important minutiæ and secrets for the past 3,500 years. Yet the entire human race, even the Hebrews, ancient, medieval and early modern alike have all practically ignored and despised its erudite, valuable and supernal teachings; and despised vital laws and forces which have all along done so much for the best physiological and sanitary interests of the Hebrew race, the lay portion of which have to a certain extent carried out the rules of their "law."

The Mosaic hygienic code is not only worth study for medico-hygienic advancement; but that study seems to be a human duty incumbent on medical men and private individuals alike. And if past ages have failed to realize the full depth, breadth, scope, comprehensiveness, utility and value of the Mosaic hygiene, that gives no excuse for our neglect or ignorance. This subject ought to be studied:—

a Because it is Divine; a special revelation from God, elaborated and enunciated for our sole benefit.

b Because, like all that Jehovah undertakes, it is an all-wise, infallible and "perfect" law.

c As the Mosaic hygiene is really God's law it is not derogatory to us to "read, mark, learn and inwardly digest" it in order that we may thereby grow in knowledge. It is such a bequest that it seems as wrong in mankind of the present as of the past either to ignore or neglect it.

d Is it not punitive to despise Divine law? To neglect this hygienic law either intentionally or ignorantly is practically to shut our eyes to Divine truth, ignore

Divine commands, refuse Divine aid, throw Divine instruction and God's law behind our back (Neh. ix. 26). Notwithstanding the constant and unmistakeable proofs of God's Divine and Fatherly care, almighty power, and personal teaching, Jehovah was forced at the end of the "Wanderings" to exclaim "forty years long was I grieved with this generation for they have not known my ways" (Ps. xcv. 10). How many centuries have we both Jews and Gentiles fallen into the same double error of neglecting God's laws and the resulting folly towards ourselves.

The Mosaic hygiene is the earliest systematic hygiene extant, and is thus the pioneer sanitary system of the human race. It antedates our modern systems of preventive medicine, which are mainly of 19th Century date, by at least 3,300 or 3,400 years. The medical lore and practice of the Hebrews, that of Egypt where they dwelt, and that of the general world of that day, when the Mosaic hygiene was divulged, was little, if at all, hygienic, but, on the contrary, was mainly curative, as proved by the "Hermetic Code," of the forty-two volumes of which six were medical and contained the collected knowledge of the savans of ancient Egypt. On the other hand, the newly divulged Mosaic hygiene was more preventive than curative of disease and thus a distinct advance.

The Mosaic hygiene was a new, special and grand revelation and a fresh departure in a previously unbroken medical field. It was practically the initiation of an entirely new school of thought and practice; and formed the birth of the sanitary-hygienic or preventive system; a school ultimately destined to rival, eclipse and surpass, if not supplant, the system then and for many subsequent centuries in vogue, namely, the curative school; now fast becoming relegated to a secondary place in medicine.

To reject or contemn the Mosaic hygiene because it is Jewish is puerile; and at the present day inadmissable. Though long despised, and much disease thereby unnecessarily incurred, a sequel doubtless sent as a heaven-designed punishment for neglected, God-sent opportunities; modern thought is gradually recognising how much mankind owes indirectly to the Jewish race; and what a prominent part they have played in the history of the world and in the civilization of the human race. Nor should we forget that it is by and through them that humankind received the Saviour, the Holy Scriptures, and Mosaic code, including its hygiene. So that this race is still indirectly the educator of the world; though their rôle as its direct educator and exemplar, for which the Deity doubtless

originally designed them, has signally failed through their own obstinacy and worldliness.

The still comparatively undeveloped state of modern secular hygiene after the lapse of all these centuries, and what they ought to have taught mankind, shews:—

1st. How much medical men, especially sanitarians, and mankind at large, have lost by neglecting to take God's advice in hygienic matters; making His revealed sanitary wisdom our primary fount of knowledge in hygienic matters; and studying God's greatest, the law of Moses, more closely, reverently and receptively, and carrying its dictates closely out. Had this been done this science of modern, secular or non-Biblical hygiene would unmistakeably have been much earlier developed and in all respects been much more advanced; and would have suffered no retardation, or, as with general science, undergone an almost total eclipse, like that of the dark and Middle Ages. What would have been the present sanitary condition of our race and the world if the hygienic code and the sanitary mission of Moses had been continued by and carried beyond the Hebrew race? What would it have been had the sanitary educational mission allotted the Hebrew race by Jehovah been fully completed as He desired? What would the spiritual, moral, social and medico-hygienic condition; and what its present enlightenment and civilization, its Godliness, happiness, and its health, had the whole of God's Sinaitic hygienic code, the law of Moses, been made the sole rule of human conduct by the Jews, and, through them, surrounding and succeeding races from the date of its delivery down to the present day? What would have been Man's condition now had the entire human, and especially the two leaders in civilization, the Jews and Christians, taken God as their hygienic instructor and guide from Sinai onwards?

2nd. How much both sanitary and general medical science would have gained, and how much more they would have been developed than they at present are, had human beings accepted, acted on and striven to work according to the Divine sanitary basis, in their efforts to develop this, the chief department of practical medicine. Jehovah's hygienic instruction at Sinai would doubtless have been just as inoperative and inefficacious in teaching medical men and mankind sanitary science; and in warning them of the danger of neglecting it, in saving the health and life and happiness of

the body; as have been his schooling regarding spiritual, moral, social, and other aberrations and inattention to the other laws of the Sinaitic code. Both have been just as little attended to and almost as much wasted on mankind educationally since Mosaic times as were the lessons of the Dispersion and Confusion of Tongues; the previous sad one of the Flood; and that of the still more remote expulsion from Eden, on the races of those the earlier days of our rebellious, self-willed and pseudo-wise race.

To have earlier taken the long offered but long rejected and despised advice of the Supreme Intelligence; and to have long since acted according to the Mosaic hygiene, shorn of its typical observances, would not have been and is not even at the present day, a retrograde but a forward and upward movement; and reaching on towards a higher hygienic plane of thought and practice, superior to our modern ideas, and towards the Divine plan, outline and essence of all sanitary science: to a law created with Man and by the same Almighty fiat; a law that can only end with Man's human existence. For medical men and the human race to accept and act up to the Mosaic hygienic code, minus its typical part, is no more than Divines of the Christian religion and their followers do when they accept and follow the Decalogue, shorn likewise of its Hebraic typical ceremonial. And to do so is no more erroneous on the part of doctors than of Divines. We may plume ourselves if we please on the superiority of our knowledge over that of the ancients. But can we do so with that of Jehovah? We may laugh at their crude hygienic ideas. But dare we deride those of the Deity as revealed in the Pentateuch? We may refuse to accept and follow their "counsel begotten of words without knowledge" (Job xxxviii. 2; xlii. 3). But is it right or wise in us to cast God's wisdom and laws, those of Moses and Nature, "behind our backs" (1 Kings xiv. 9; Ps. xxiii. 35; l. 7; Neh. ix. 20)?

Unquestionably this hygienic legacy of Sinai was bequeathed by Jehovah, although indirectly, as much for the human race at large then and for all time, as it was for the Hebrew race who first received it, proved its practical efficacy, and were meant to spread abroad and propagate its far-reaching and world-circling doctrines. The Mosaic hygiene is ancient but can never become antiquated or obsolete as long as Man exists. It was not formulated solely for the Jews, either ancient or modern. Therefore in its entirety it is not to be read and regarded merely as a valuable literary and historico-medical curiosity and archæological Mosaic. Like all other parts of Scripture it was given mankind for them to read, mark, learn and inwardly digest, as it is "profitable for doctrine, reproof in

righteousness, and for instruction" (2 Tim. iii. 16). And as a secondary but nevertheless all-important result of this, it is meant to be followed up and acted on even to the very letter, by Jew and Gentile alike, even at the present day; that the man of God may be "perfect" or complete and thoroughly furnished unto all good works" (2 Tim. iii. 17). Therefore it may be asked have mankind, and especially medical men, up to the present time, or at least up to a not very distant date, acted wisely and well in ignoring these Sinaitic or Mosaic but really Divine laws of hygiene? Should they not be made the main rule of our hygienic conduct; the basis of our hygienic systems; the texts for our sanitary teaching? Should we not regard them as a by no means unimportant part of God's laws for the conduct and care of our health and life; and as, for the welfare of the human body, as important as is the Decalogue that now, as formerly, forms the chief basis for our spiritual, moral and social life-conduct, and guide to promote the welfare of the human soul.

The present and future position, place and value of that portion or sub-section of the Mosaic code termed the hygienic law, in our Christian belief, and made a rule of faith and conduct, correspond to the position of the complete Mosaic code, as already given in a former paragraph. Though, like it, shorn of its typical, allegorical, figurative and sacrificial additions, as well as of its incense-burning oblations, rites and ceremonies and sacrifices; it is not and never should be deemed worthless, but of extreme value, as it still continues as it did before Jehovah at Sinai added all those observances, to be one of the vital laws of the universe and Nature's great hygienic law for humanity.

No medical man, philosopher or scientist, not even the leaders in medicine; men like Vesalius, Harvey, Morgagni, Haller, Hunter, Bichat, Bernard, Lænnec, &c., has yet appeared and probably never will, gifted with the necessary intellect and knowledge to conceive and formulate such a condensed and masterly, comprehensive and superb framework of sanitary science, admirably fitted for a special purpose; namely, the opposition, lessening and abrogation of disease-making and life-destroying agencies; adapted for all ages, peoples, times, circumstances, climates and environments. If Jehovah deemed it best and so ordained that in His "light we should see light" (Ps. xxvi. 9) thus early in our human career if we chose, and thought it necessary to include these hygienic laws to promote our bodily welfare, is it courteous, commendable or a proof of full fealty in us to ignore them when we have no other excuse for our conduct than human self-sufficiency and conceit?

As no medical man from Moses downwards, and not even that venerable worthy himself, with his six-score years' study

and knowledge of the world, could possibly have had either the necessary knowledge or the intellectual genius to beget and to formulate so many new sanitary ideas and a hygienic code like the Sinaitic: even as no Priest, Divine or scholar, or any combination of these, could have constructed the complete Sinaitic code, or even the Decalogue, that date back for at least 34 centuries. And as Moses not only wholly disclaims the authorship of the whole, but also frequently, distinctly and emphatically, though not in a direct manner, insists on who is the real and only Author of the entire code: have we not clearly, both in the code as a whole and in its lesser hygienic portion, both of them documents written out by Moses (Ex. xvii. 14) at least over 1,600 years before Galen, over 1,000 years before Hippocrates, the earliest of the notable "fathers" and founders of the healing art, and therefore at least 20 centuries before the dawn of credible secular medical history: and especially when we look into the crude and elementary ideas of that day, especially its hygienic beliefs, almost a blank: does not all this furnish ample, nay, complete proof, that the ancient, yet advanced and perennial hygiene of Sinai was really Divine and inspired; and that it is in itself complete and satisfactory evidence of the inspiration and veracity of the entire Scriptures?

Though, if taken broadly, the hygienic code of Sinai has hitherto been a comparative failure; as indeed and in a similar sense have the Ten Commandments; and has hitherto failed as signally to make the human race thoroughly healthy, or to banish disease from earth, even leprosy, as the Decalogue has to stamp out sin from the human race: both of them have unquestionably done not only much good among those who believed and obeyed, but also an amount that, but for them would have remained undone. The one has saved much health and life; and the other an incalculable amount of sin and misery. And, if the result is not fully what the Deity anticipated and desired, the fault clearly lies with Man's own lack of wisdom, dull understanding, unappreciative folly, rebel minds and ungrateful hearts: and not with the love and wisdom that have all along been holding out and even now offer both hygienic instruction and aid towards the attainment of our much-desired medical purposes.

Though for a definite object it was at its institution at Sinai and for about 1,650 years afterwards; that is until Christ's crucifixion, accompanied by various functions in the shape of sacrifices, ceremonies, oblations, &c., that were purely typical and temporary; Jehovah in enunciating the Mosaic hygienic law at Sinai was then merely divulging and teaching a law that was, is, and ever shall be, at least as long as Man exists as he is, identical with, and is in fact only God's veritable, eternal, inexorable

and unchanging law of hygiene or law of health preservation and restoration. And He then merely enunciated and revealed a law which is as fixed and immutable and inexorable as the many other "natural" laws of the universe, physical, vital and spiritual: laws which, like the forces they control, were created by the Omnipotent. The great laws of hygiene, of which the hygienic code of Moses enunciates the chief base facts as well as many of the minutiæ, cannot be annulled or discarded, as they form an indispensable part of the more numerous laws of life, the biological, physiological and pathological; and can no more be dispensed with or abrogated than these. They are as permanent and fixed as the human beings for whose benefit they were first framed; and for whose education and good they were donated at Sinai by the Divine Legislator and Hygeist Himself. And this is the hygienic law enshrined in the Pentateuch.

This immortal and invaluable code of health laws however, many since its enunciation at Sinai have ignored and despised; while not a few do so even now, for many and often very different reasons. These it is well to review briefly in connection with these pages and the arguments that ought in unbiassed minds to refute them, one and all.

1. We need scarcely expect Atheists and Sceptics of various grades, or those who disbelieve God's existence and deem His Holy Scriptures an imposition, to think the hygienic law in question is really Divine, but only human and interpolated.
2. Others who believe in a God, disbelieve the inspiration, veracity and Divinity of the Holy Scriptures; and think they and their hygiene merely human and fallible.
3. Others, who believe or tacitly accept the credibility of the Holy Bible on the whole, because so educated doubt its authority on this special point of medicine, because the hygienic law in question is not found in and as a part of a strictly sanitary or medical volume; but in a book that is mainly theological and religious. These deem its hygiene therefore out of place and of little or indeed no value. Fuller study ought to shew that the Holy Scriptures are meant for the aid and education not only of all mankind, but also for the entire entity of every human being, soul, mind, body, morals and social instincts. No part or function is omitted. No portion of the comprehensive Divine scheme could have been omitted without maiming the main intention of the code and rendering the scope of our human education on earth incomplete. God's Holy Bible is meant to promote the health and hygiene not only of Man's higher nature, but also those

of his earthly entity, his body and its functions. His corporeal sanitation is thus included as a vital part of the complete scheme of human reclamation and redemption. The hygienic laws of Moses should therefore be received and studied, both individually and collectively, as fully and reverentially as the other oftener-perused laws of the code.

4. Others by an error of judgment arising often from superficial reading, deem the hygienic law purely the compilation and work of Moses, the Man after whom the entire code is named by the Divine sanction; and therefore consider it only a human and therefore fallible emanation, and old fashioned. Hasty readers both of the law and the life of the law-giver are apt to plead that he was not a medical man; and his professional remarks in the Pentateuch therefore untrustworthy. Moses, however, was doubtless as learned in medicine as in the rest of the wisdom of Egypt. He was thus a professionally as well as a Divinely accredited recipient of the medical information which he so clearly enunciates not as his own but as wholly Divine and therefore infallible. A sage of such commanding intellect was clearly the man best fitted to welcome and perpetuate by authorship and practice this entirely new departure in medicine, the preventive. Moreover, Moses had a long 48 years' experience of hygiene after the law was enunciated at Sinai, as the chief health officer of the Hebrews in the Wilderness.

5. Others again refuse to accept the Mosaic medico-hygienic information because it is Hebraic and they despise the Jews and all that is Jewish, past and present. Jews, Gentiles, and all mankind, however, have a common racial origin. Nor are their bodies physically or physiologically inferior or different from ours, any more than are their souls or higher nature, but, if anything, the reverse; as they sprang from special stock, a Heaven-selected ancestor, and were the first God-chosen and Heaven-protected people. Nor can the hygienic code which has helped so materially to keep the Hebrews, their marked individuality, permanence, health and virility, be deemed inferior, but rather the contrary. Their superb health-laws should therefore be imitated and followed rather than neglected and despised. The hygiene that suits them should, broadly speaking, suit us and all mankind. Race makes little difference in infection and contagion, and very little regarding disease, its prevention, and indeed

hygienic matters generally. Thus it is with hygiene and much else that is Biblical. They were long despised because Jewish, and, like the nation, became a bye-word, and were either laid on the antiquarian shelf and so practically forgotten; or put aside for a "more convenient reason" (Acts xxiv. 25).

6. Others may object to this hygiene because it is at least 3,500 years old, and therefore to be deemed ancient, obsolete, antiquated, and behind the times; in short, like the medical writings of far more recent date, like that of Hippocrates, Galen, &c., and thus only fit for the Bibliopole and bookshelf, or for the student of ancient history anxious to study special parts of the rise and progress of primitive medicine. This is clearly a fundamental mistake. Divine ideas can never become obsolete. And in all He says never wastes words or instruction in His model hand-book. If we exclude, minimize, or despise Biblical hygienics we must put aside every other scientific theme of which the truly encyclopœdic Scriptures treat; such as its history, biography, physical science, literature, art, &c., &c.; because the sacred pages are not wholly devoted to any one of these to the exclusion of others; not even to its main theme, theology. As Divine all are clearly worth study. Search the Scriptures was said by Christ to the people (John v. 39). And not the least is the medical lore, to ascertain what "the mind of the Lord" is on this most important theme, the hygienic care of humankind by their Creator and Sustainer.

7. Some may argue that this and the entire Mosaic law were annulled by Calvary, like the ceremonial law, and was only temporary, special and meant only for the early Jews and the Wilderness. This not unfrequent idea and its outcome are both fallacious. Consequently, altogether apart from its practical medical value, both non-medical and perhaps some medical minds quietly shelve the Mosaic hygiene and obliterate it from memory and conscience alike; seldom read, far less study or weigh its worth. For any individual or even body of people to annul the Mosaic hygiene on their own responsibility, and that merely because one other section of the Mosaic code has become obsolete because it was of special temporary import, is both illogical and absurd; and will appear doubly so if the law is deeply studied. For when or by whom was the sanitary law of Moses annulled? Did Christ annul it,

to shew that Moses had received only a temporary arrangement, adapted for the special and temporary conditions of Hebrew life; for their nomadic existence; local climate; a lately enslaved, degraded, and yet only semi-civilized grade of humanity; and to be annulled when that phase of Jewish existence had passed away? On the contrary, the God-divulged hygienic law of Sinai was fundamentally "perfect," although capable of being developed, elaborated and enlarged: the great outlines and chief base facts of sanitation being supplied from Heaven, leaving the minor details and minutiæ to be subsequently filled in by the less comprehensive minds of men. The ceremonial law was merely a "shadow" of good things to come (Heb. ix. 11; x). Instead of annulling Christ came to "fulfil," follow, endorse, emphasize, magnify, make honourable (Is. xlii. 2), and lift the law into a higher plane, when a further development or phase of His Divine plan of salvation came into force by His death and resurrection. This one sacrifice for all and once for all abrogated and annulled the ceremonial and sacrificial parts of the Mosaic code, as no longer necessary. Calvary and its episode replaced Sinai and its temporary phase of human redemption. The periodic or occasional sacrifices and oblations, burnt offerings, peace offerings, wave offerings, &c., of the latter were no longer necessary, or consonant with the Divine methods and will. But, as the Decalogue for the sanitation and sanatation of Man's soul, heart, mind, social life and body remains intact and in full force; so does the medical code of Sinai as the basis of all sanitation; the dictum of the highest and only infallible sanitary authority, the Supreme Divine, and only "perfect" law and force maker, Jehovah. Till "Heaven and Earth pass away one jot or one tittle shall in no wise pass from the law till all things be fulfilled" (Mat. v. 18) was not spoken of the Decalogue only, but is equally applicable to the entire code, the ceremonial only excepted. The new Christian dispensation has done away with and annulled the old ceremonial, typical and allegorical function of the temporary Hebrew Church and Jewish mode of worship. But it has neither abrogated nor altered the Mosaic law as a whole, nor its sanitary portion. The soul of man and his moral and social tendencies have not altered since the days of Adam or Moses: and therefore the Decalogue is as necessary as ever and remains in full

force. Nor has the human frame altered materially, except perhaps on the side of degeneracy since the promulgation of the Sinaitic law. Human anatomy and physiology are virtually unaltered either in Jew or Gentile. The same hygiene suits all men, as does the same theology, morality and sociology. With this in outline Jehovah enlightened our human hygienic darkness at Sinai. The Mosaic hygiene therefore, as a system adapted for mankind, thus clearly stands unaltered, and as forcible and effective now as ever. While the Mosaic ceremonial law has been wholly annulled, certain other parts of the Mosaic code; *e.g.*, the criminal, land, poor, political laws, &c., may have been and may still be varied to suit different peoples, times, places and circumstances. But they still do and ever will form the basis and groundwork for all wise laws for the most civilized and enlightened peoples: and the best foundation for our human codes, because Divine. The sanitary law of Moses, shorn of its typical sacrifices, remains wholly intact and unaltered. Is it not then a Supreme and audacious derogation for finite and created minds like ours to cavil at, criticize, and minimize the sanitary edicts of the Uncreate and Infinite Wisdom as laid down in the Sinaitic sanitary code and that form an integral part of the Heaven-decreed laws of Nature.

8. By many of the better-educated public, and even by a few less excusable medical men, it has not been generally recognised as an accurate and reliable medical law fit for the present day and for our more advanced modern knowledge. Such depreciate its value and importance, because it is 3,500 years old, and thus deem it both ancient and antiquated, like the human learning, manners, customs, dress, dwellings, sciences, philosophies and other items of that early day; and doubtless consider it, as it was promulgated some centuries earlier, even more crude and primitive than the medical lore of Galen, Hippocrates, and other medical "Fathers." Is not all this fallacious? For from a purely human standpoint can a medical code like this, even though old in time, be deemed obsolete, that plainly initiates, inculcates, enforces, and practically proves its professional value by its past and present operation on the Hebrew people: and which so long as 35 centuries ago pioneered ignorant mankind regarding:—

   a A plain statement for recognition of the contagiousness of leprosy.

b The indoctrination of the value of isolation and segregation as a preventive of the spread and progress of leprosy.

c By making leprosy the type, and thereby inferentially inculcating the contagious nature of many other acute and chronic contagious diseases.

d By inculcating one of the best methods of meeting, opposing and crushing these, namely by isolation.

e By proving the possibility of preventing them by similar methods.

f By initiating and endorsing the prevention of these contagia by bactericidal fumes and methods.

g By inferentially teaching the adaptability of these means to all contagious and infectious diseases, in every race, place and circumstance.

h Or can any system of hygiene be deemed obsolete which, like the Mosaic, taught the great value of excessive cleanliness and purity in all things, on all occasions, and everywhere, and points out that the purity of the air we breathe, the water and food we consume, as well as that of our bodies, clothing, bedding, houses and utensils, furniture, tents, camps, and communities, &c., is the great base fact and fundamental idea of the whole philosophy, science and art of sanitation. And that even extended this idea to the hygiene of the soul, morals, social life, and intellect of humanity, and thereby anticipated and ante-dated modern secular hygiene in everyone of these important and indeed vital points by very many centuries.

Though ancient in time from a human standpoint; that ought to be no bar against its acceptance now, any more than the same argument should be for our refusal to follow and receive the Decalogue, or the history, biography, &c., of the early world and many other subjects spoken of in God's Holy Scriptures. The present argument is therefore non-suited; since the Mosaic sanitary code withstands criticism and has theoretically held its own through so many centuries, and practically equals, nay, ranks, above even the best of modern systems and excels them in certain points.

9. Others may perhaps suppose that the Mosaic sanitary code was made to suit a different climate, that of

Arabia and Palestine. Sanitation, however, is not materially different in our temperate and their semi-tropical latitude. That the Hebrews, though a God-selected, heaven-guided and protected race, were not specially different from or required a different hygiene from the rest of mankind, is evident from the third paragraph. Nor did their nomadic camp life in the Desert make a different hygiene necessary from that required amid other environments, except perhaps a stricter and more accentuated one. The Sinaitic sanitary code adapts itself to every climate, condition, circumstance, place and period; and is of world-wide application and time-long value.

10. Many, even medical men, may deem the Mosaic sanitary rules excessively minute and even frivolous. Some may explain this by saying they were typical and figurative. No unbiassed student medical mind will however deem them trivial; especially the rules for cleanliness and disease-prevention. Our modern maxims for the attainment of the same ends are equally minute; and no wise medical man considers them trivial or unnecessary; inasmuch as too great cleanliness or caution are impossible in sanitary matters.

11. The Mosaic hygiene has doubtless also been unstudied hitherto, because till lately sanitation was a practically unknown, unrecognised, neglected and therefore unstudied science. That scattered through the Holy Scriptures generally was correspondingly undervalued until sanitation became better appreciated and studied as the leading idea and main point in all judicious and practical medicine and surgery.

12. Another important cause for the neglect of Biblical hygiene and indeed of secular sanitation also, was a lamentable ignorance, often not solely confined to the lower classes, of certain leading and important points in physiology and health knowledge; such as these:—

a That the disease-repelling and health-protecting and restoring powers implanted in the human body are limited. The human frame cannot stand much abuse or neglect or long subjection to insanitary conditions. The limits within which it can keep itself in health, or help to restore its own health and strength when these are at a low ebb, are not wide.

b It therefore follows that both of these body functions have to be constantly guarded, helped and guided. The human body must

be aided both in the preservation and restoration of its life and health; and in its preservation from disease and death. This care of our heaven-bestowed gifts or "talents" is thus not only a pressing and important physiological demand, as well as an inexorable scriptural command (Mat. xxv. 25).

c The hygienic help now spoken of should and indeed must come mainly from ourselves. In a very large and wide sense each individual must guide, guard and superintend his own life and health; and work these out, as he must also his own salvation (Phil. ii. 12). This duty is personal and not vicarious in adults.

d That in matters of life and health, while God will assuredly aid all, as promised, in preserving both, when this is beneficial for us, wise and good (Ps. ciii. 4; Ex. xv. 26); Heaven as a rule, other things being equal, mainly helps such as help themselves. God will no more keep us from death and disease, nor will He abrogate the laws of life and health for our individual benefit, and without our own personal efforts, than He will feed, clothe, house, or enrich the lazy, ignorant, or unwilling. Human self-help and heavenly efforts in combination are as necessary to preserve or restore life and health; as with all else that is human.

e This self-help implies a necessity for a personal knowledge of at least the elementary laws of life and health preservation, to enable each to look after and protect his own body; this being a matter of far more importance than the preservation and care of many other far less valuable possessions; although clearly of infinitely less import than the care of our noblest and most precious Divine and yet earthly possession, the immortal soul (Mat. xvi. 26).

f Another point on which much ignorance still prevails is this, that hygienic or sanitary knowledge, such as Man needs and finds supplied in its very best form by the supreme authority and instructor, the Deity; is easy and ready to hand; and has for the past 35

centuries been provided for us in the Holy Scriptures. Till lately the masses have been steeped in ignorance and in few things more than in medicine and hygiene. Nor could we expect them to know, still less appreciate, Biblical sanitary science, especially before the Holy Scriptures became a cheaply bought volume free and open to all. And even the better educated could neither fully understand nor appreciate its wisdom, as they had not the necessary medical knowledge.

g The failure of the Jews to accept their opportunities and rise to the occasion; and thus to respond fully to and carry out willingly and zealously the Creator's scheme for their enlightenment and elevation in the scale of humanity: their consequent fall and degradation and lapse into comparative obscurity and despite; the resulting worldly debasement of their sacred book, the Pentateuch, and its law: have no doubt caused the Sinaitic sanitary code, like the rest of the Mosaic law, to be placed in like obscurity. This position the intellectual darkness and degradation of the ages both before and after the fulfilment of Christ's great mission, must have materially accentuated; thereby preventing a knowledge which almost amounted to a complete ignorance that such a valuable sanitary code existed at all.

h Atheists and Sceptics in God and the Bible do and have always abounded. Nor could we expect these to accept or study scriptural sanitation. But, added to the above, even among nominal Christians, one form of self-conceit, namely pride of intellect, has doubtless led many, even medical men to imagine they knew sanitary science better than the Bible; and could even devise better health laws than the Being who fashioned the human frame, bestowed the intellectual acumen of which they are so vain, made the life, health and diseases they study, the forces and laws that govern physiology, pathology and biology—sciences of which they are only the fallible and crude exponents; made them beings who, while possessing potential facul-

ties see finitely and as in a glass darkly (1 Cor. xiii. 12) and investigate God and His mysteries of human creation with at least but feeble minds and dull eyes: and yet prefer their own sanitary deductions to those of the All-seeing and All-wise Creator and His Word, in which His views are enrolled for so long, and are so easily found and understood.

Biblical hygienic study such as this ought to go far to shew how fallacious are these ideas, and should bring the following points into marked prominence:—

a That the Sinaitic hygiene, like the Scriptures as a whole, is not trivial or obsolete and unworthy of modern credence and notice; but, on the contrary, is deep, broad, comprehensive, perennial, and fitted for all time, every place and all sorts and conditions of men. Not the moral laws of the "one law-giver" (Jas. iv. 12) only, but all are perfect (Ps. xix. 1).

b That the entire series of codes of the Mosaic law is hygienic and sanitary as well as curative or sanatory of the different human aberrations they are meant to obviate or to combat. In their entirety each and all are complimentary and correlative: and conjointly meant for the welfare of the entire human being.

c The Mosaic law, both in its special divisions and in its entirety is Heaven-sent, God-begotten and inspired. The work of the Tabernacle was made by the Divinely inspired Bezaleel and Aholiab, according to all that the Lord commanded Moses (Ex. xxxix. 41). So in like manner with the literary matter of His code. These laws, spiritual, social, ceremonial, civil, judicial, communal and sanitary, were not an intellectual emanation from the genius-brained Moses; but gems of thought that sprung from the Godhead.

d Such a study points out the true relation of the art and science of sanitation to God and to mankind; and vice-versa, their relation of the latter to Him and to it.

e It ought to shew the true relation of the hygienic portion of the law of Moses and that of the Bible generally to the secular art, science and philosophy of sanitation.

f It should also prove that the deeper our study of the Holy Scriptures, the more apparent become their Divinity, super-excellence and perfection, and the value of all the book affirms and its reliability for educational purposes.

g The code will only furnish another proof of the wisdom, foresight and beneficence of the Being who planned

it: as contrasted with our human dullness, darkness, slowness, weakness, and narrow grasp of general intellect and of enlarged hygienic ideas.

h It will go far to shew that the hygienic code of Moses inculcates the laws of Nature and therefore was not meant solely for the Jews of the Wanderings and their successors, but also for the Gentiles and all mankind, and is not only time but race lasting.

k That it was not meant solely for the Hebrew camp, the Wilderness and Judea: but also for all places, communities and conditions of life.

l That though humanly ancient it is not antiquated, even its Mosaic hygiene; but is equal to, nay, still in advance of our purely secular hygiene.

m That instead of being shelved and ignored from the days of Moses downwards it ought to have formed the basis and starting point and foundation of all of our sanitary systems.

n That it is a code from which even the most advanced of modern sanitarians might learn.

o That it does not enter into all the details and minutiæ of hygiene; but merely that all its affirms and teaches is strictly correct, suggestive and irrefutable; all it commands is medically right, true, efficacious, tried and perennial.

p That the hygiene of the Holy Scriptures, especially the sanitary system revealed by Jehovah to and for the Hebrews at Sinai, is a code which deserves study; nay, that it is a plain and imperative duty to study; and, as far as possible and judicious to follow its dictates for our own human individual and public benefit.

q Does not such a study render testimony to the Divine origin and inspiration of Holy Scripture.

r It will at least serve to remind Bible students that the hygiene of that Holy Book, especially that of the Pentateuch, is Divine and therefore perfect; that Christ endorsed it, the same "person" of the Godhead probably who delivered it at Sinai. And that by rejecting, despising, or ignoring this, we are practically contemning, insulting and shewing the deepest ingratitude and lack of respect for and of confidence in our best friend, Jehovah, who devised these sanitary forces and laws and bequeathed them solely for our benefit. By so doing we are rejecting, not the hygienic ideas and work of the Hebrew man, Moses, but those of the Supreme. Our duty and highest wisdom is to read, study and receive them gratefully.

It seems only fair to concede that during the 19th Century, especially its latter half, the importance of hygiene has received full recognition. Sanitary science, both theoretical and practical, has come to the front with astonishing rapidity: and preventive medicine may now be said to have taken its proper place as the leading department of that art and science. Nor have Bible hygiene and the Mosaic sanitary code been altogether neglected. But how different it was in more recent times. Deeming those so-called Mosaic hygienic laws merely human, temporary, Hebraic and Mosaic; and therefore antiquated, obsolete, out-of-date, and altogether crude and unfit for the present day; and evidently forgetting that they are God-devised and therefore "perfect," perennial, meant for all mankind, all times, circumstances, races and climes, and calculated to make the "simple" human mind "wise" (Ps. xix. 7), they have long been partially or even wholly ignored and neglected. How few of the laity and even medical men of former days read and regarded them otherwise than only of antiquarian and historic interest and curious: but, with the hygienically unawakened minds of former days have never even taken the trouble to study them carefully and critically from a professional rather than from a literary point of view, and in a reverential, though critical, Christian spirit.

Seeing that Jehovah deigned to visit rebel Earth and Man with the sole object of benefiting these by the bestowal of this superb and supernal code for human conduct and reclamation: and that after repeated refusals to turn from their evil ways and acknowledge, love, honour and obey Him; and their continued and progressive descent into sinful thoughts, words and ways; and an utter disregard for and forgetfulness of the Being who created and sustained them; it must be conceded that, with one exception, namely, the sacrifice on Calvary, nothing can be culled from the Scripture narrative, the history of medicine, the world's history, or the past career of our race, that gives better proof of the far-seeing, wide-reaching and all-embracing, though sadly unappreciated, wisdom, beneficence, forethought, forgiveness, and love of the Divinity, both to the chosen race of that day and fallen humanity for all time than the revelation of the Man-renovating Mosaic law that teaches the essence of correct living and conduct during the many different, complicated and closely associated portions of Man's marvellous entity in the many varied and often difficult conditions of his eminently critical and changeful earthly life. This view is only intensified when we consider the wonderful adaptability and applicability of the Sinaitic code to the entire nature of Man; a being possessing both a body and a soul; spiritual, moral, social, mental and physiological attributes; as therefore belonging both to the

physical and the psychical worlds; as being a denizen of Earth and yet an heir of immortality; and thus having a close relation to his own world, to the universe, to his fellow creatures, and to God; and also to the time and conditions under which the God-like bequest was revealed. To all the hygienic law necessarily contributed its share, and that a by no means trivial one.

On the other hand, no part of the Mosaic code in its entirety, and few parts of the Holy Bible as a whole furnish better proofs of the inspiration, credibility, and Divine origin of the Pentateuch and of Holy Writ as a whole, than does the hygienic portion of the Mosaic law, which teaches how to be clean "every whit." Should not mankind who benefit by this render to God the praise, glory and credit that are so clearly His due?

The period of the Exodus, the Forty Years Wanderings, and delivery of the Mosaic law at Sinai, formed one of the most momentous and monumental eras in the history of Man and the World; and in the story of Earth and Humankind ranks next to that epochal event which formed the climax and consummation of God's plan of salvation, the one sacrifice for all mankind and every sin for willing souls, the Crucifixion on Calvary. Mount Sinai, where the first stage of God's great educational and sacrificial plan for the salvation and enlightenment of the human race was begun, thus stands next in honour as one of Earth's Divinely historic mountains, to Calvary which saw that plan consummated. The Sinaitic or Mosaic law is one of the grandest of tuitional schemes because Divinely comprehensive and complete; and as such only surpassed by the educational Christianity of the Saviour of men. The Man Moses, the "Man of God," Patriarch and Prophet; the being so highly honoured by Jehovah as to be the receiver and first exponent of that law, must also be regarded with the deepest veneration and reverence by mankind; and held to rank only next to the Baptist John as one of the greatest of men the world has ever yet or will ever see (Mat. xi. 11; Luke vii. 28).

An impartial study from a medical point of view of the hygiene of the entire Bible, especially of its most important and far older part found in the Pentateuch, will serve to convince candid minds of the fallacy of much of the old reasoning and former ideas regarding the sanitary science of the Holy Scriptures: and will help to assign its true place, nature, import, and value not only in the Mosaic code; but also as regards the human economy and history of the race, the Jehovistic dealings, and God's attitude towards rebellious and obstinate humankind. Though somewhat scattered, often incidental, and occasionally repeated no doubt for emphasis: when separated from the rest of the Sinaitic code or text in which it is embedded, then collected and systematized, it will be found to be much more im-

portant and instructive, both practically and didactically, than is usually supposed: because it is deep, multiform, utilitarian, comprehensive, and in no sense trivial, common-place or old-fashioned. It treats not of one object or subject but many. And of these it gives the most important base facts, and great general outlines; the whole being calculated to teach both directly and indirectly or inferentially regarding the entire domain of physiological, that is health, and of pathological, that is disease, hygiene. And it will further appear that the Mosaic hygiene is not only an important but a necessary and indeed integral part, necessary to complete the Sinaitic code for human benefit.

By far the greater and assuredly the most systematic and important part of the hygiene of the Holy Bible is found in its most ancient part, the Pentateuch; which, though orally received and physically written by Moses, contains the revealed laws and will of Jehovah, hygienic and others, divulged for His fallen offspring and creation, Man. This shews that the Mosaic hygiene does not consist solely of the "law of the leper" and matters relating to that historic disease leprosy; an ailment which, until lately, was, at least by the masses, deemed either a defunct disease or an imaginary symbolic ailment, employed in those early days for special typical purposes in the Hebrew ritual and religion. Unquestionably the law of the leper form, if not the largest, certainly the most important theme of the Mosaic hygiene; that which received most of the desultory attention given by students and Christians to Biblical medical matters, and thus had most prominence and held the highest educational place. But we also find many other important rules and laws for other departments of the hygiene of disease and physiological or semi-pathological conditions, which a glance will prove to be among the most universal and frequent that occur in the daily life of all humanity of all time; and which it is therefore of the utmost importance to recognise and legislate for medically (Lev. xii. 2; xv. 2; xv. 16; xv. 19). By far the largest part of the Mosaic hygiene however consists of important rules on many other subjects; all relating to the hygiene of health. These will be found equally valuable, suggestive and worth study, even at the present hygienically-enlightened day: inasmuch as they are, like the former, at least up to, if not occasionally in advance of our modern secular ideas and systems of sanitation; and give sensible rules regarding health preservation, that many unenlightened persons contemn or disobey. and many a lesson may be derived therefrom, not only by the laity but even by medical men, regarding these as sanitary exemplars and teachers of the multitude: instead of regarding them solely as medical classics and relegating them to anti-

quarian and medical-history lore: the Mosaic to be placed even further back and regarded with even less practical interest, though perhaps with more curiosity than the works of Hippocrates, Galen, and other "fathers" of medicine of many centuries later than Moses.

In their collected form and entirety these Biblical sanitary matters, especially those of the Pentateuch, form a complete and valuable outline of sanitary science; in which the most important facts and factors of that very important study, sanitation, are briefly yet pointedly treated with a Master-mind, that of Jehovah. The whole prove that ever since He created Man He has all along and systematically, especially at Sinai, legislated for and looked after our human bodies as well as after our immortal souls: that He gave laws of life, light and leading not for a part only but for the whole of our human entity; rules not alone for human guidance in spiritual, moral, social, political, and secular matters, but also for the care and welfare of that most important part of all humanity, namely the body. God therefore desired, by His sanitary laws of Sinai, to "fashion the heart" and teach it sanitary as well as other matters (Ps. xxxiii. 14; xxxii. 9); and to give them not indirect and human tuition but to instruct them Himself with His wisdom which is "infinite" (Ps. cxlvii. 5); and with His counsel and thoughts that shall "endure for ever" (Ps. xxxiii. 11): so that thereby the Israelites, and through them Mankind generally, might be "quickened" into the highest, truest and best of all sanitary knowledge (Ps. cxix. 33). For the "statutes of the Lord are right" (Ps. xix. 8). And that "the testimonies that thou hast commanded are exceeding righteous and true" (Ps. cxix. 138) is as certain regarding Biblical sanitation as of all else that is Scriptural and divulged and endorsed by Jehovah (John v. 45-47). The Hebrews were especially honoured in being the instruments Jehovah employed to spread these truths, for "he hath not dealt so with any other nation" (Ps. cxlvii. 20). And He provided them with a special teacher, highly educated and intellectual. Moses, after Jehovah's Sinaitic instruction in sanitary lore, had "more understanding than his teachers, for God's testimonies were his study" (Ps. cxix. 99). In all this the love and beneficence of Jehovah towards the Hebrews particularly and Mankind generally, is especially evident. For "the Lord knoweth the thoughts of Man that they are but vain" (Ps. xciv. 11). God knew the Hebrews had not then found out the advantages of and practically knew nothing about the art and science of sanitation. And also that when they did their initial ideas therein would long be primitive, crude, fallible and erroneous. And He felt that which Mankind often fails to realize, namely, that when His "word goeth forth it giveth light and understanding to the simple"

(Ps. cxix. 130). But for the sad fact that the Hebrews so often "murmured in their tents and harkened not unto the voice of the Lord" (Ps. xxi. 25), how much better off, not only in sanitary but also in many other ways, would both the Israelites and the human race have been now had they then, and had we sooner, received God's information and teaching in sanitary ways (Ps. xxxii. 9) than we have done. Health is "far from the ungodly" (Ps. cxix. 155): and it is pertinent to consider whether or not all those may be added to that category who "regard not God's statutes" (Ps. cxix. 155), including those which are sanitary, these being doubtless as binding and as punitive when neglected, as the rest. It is the Lord who gives "an heart to perceive and eyes to see and ears to hear" His laws (Deut. xxix. 5). But in these early Hebraic times and not unfrequently "even unto this day, when Moses is read, a veil is upon their hearts" (2 Cor. iii. 15).

Few, if any, codified rules are to be met with in any age of medicine, ancient or modern, better calculated to keep the Israelites individually healthy than were those of the Pentateuch. It is especially noteworthy that the Mosaic hygiene, public and private, not only antedates all of our modern sanitation in many respects; but also emphasizes its laws, and enforces them much more effectually and stringently: and, moreover, is in some respects ahead of our systems of the present day. Every one of the hygienic laws had to be obeyed by the Hebrews. We read of no excuse or evasion. The amount and value of the sacrifices imposed were modified according to the ability and wealth or poverty of the sacrificers. But there is no such leniency shewn regarding the hygienic enactments. All had to submit and carry out the Sinaitic rules, whatever these happened to be, whether regarding cleanliness, food, clothing, &c., &c. For their strict fulfilment the Priests and Levites were doubtless responsible. No record has been left of the punishments ordered for disobedience.

No one can doubt on fair and impartial criticism that these physical ablutions and cleansings so often inculcated had an intentional, secondary and main sanitary object; and were meant to educate both the medical Priests and the people in the invaluable sanitary doctrines and benefits of personal cleanliness likewise, and in the all-important hygiene of the person. Neither can anyone doubt that the ceremonial inculcations regarding Rest are also and secondarily hygienically educational: and have their physiological as well as their psychical bearings. Nor is our nightly sleep or the weekly rest of the Sabbath purely typical: nor even the rest of the land ordained every seventh year. These are all hygienically beneficial and recuperative. Are not sleep and rest, health and strength re-

storing to the tired brain, heart and body, as well as restful for the soul, its reflections and heavenly aspirations. Is not rest of the land physically and chemically recuperative of the exhausted soil. Physiological rest for the body and spiritual rest for the soul, mind, morals and social life are all equally necessary for retention of health. So also regarding the Mosaic enactments about exercise and work. A certain amount of activity is as necessary for the human body and its every part and function as it is for the human soul. Both rust and deteriorate when long unemployed: and are apt to atrophy or even become diseased. The Mosaic laws regarding work are not therefore purely typical but medico-hygienic also; and educational therefore both in the sanitation of the body and the soul. Nor are the Mosaic laws regarding cleanliness purely typical of soul and heart purity. They also inculcate cleanliness of body, and purity in every one of our mundane relations and actions. The Mosaic laws regarding food selection and its division into clean and unclean varieties are not purely typical and ceremonial. They are distinctly hygienic, preservative of health, and preventive of disease; just as clearly as they imply that our moral, mental, social and spiritual aliment ought to be as carefully selected and cared for as that for the body. What applies to the care and selection of our food is equally applicable to our fluid supply or drink, the purity inculcated is physical; but has a typical application also. So also regarding purity of our breath supply, the atmosphere. This is medically and hygienically essential; and for this the Mosaic law in its camp and Tabernacle arrangements amply legislates. But in doing this the typical intention and necessity for Man having as pure a moral, social, mental and spiritual atmosphere and environment as free from defiling and contaminating agencies as it does for those for his lungs, body, digestive system, &c. Thus the Sinaitic enactments regarding this are both typical and medico-hygienic. So also the Mosaic laws regarding cleanliness and purity of our clothing is not entirely typical or ceremonial any more than it was in the Hebrew ceremonial, the Priestly and Levitical dress. This was and is sanitarily necessary and implied. The other laws; for example those regarding married life and morality, are not wholly typical, but are also and largely and necessarily medico-hygienic, health preservative and disease preventive. Indeed this double aim runs through the entire Mosaic code. Our human health laws are double, like our main entities, body and soul. They are meant for both and therefore are necessarily inter-dependent: enactments for one being equally applicable to the other. And the ceremonial law of the Hebrews which inculcated extreme purity, holiness and devotion in the worship and general service of the Supreme as the sole fount

and source of soul-health and happiness, likewise implied and suggested in these laws extreme purity in every act and relation of our communal, especially in our private life, as the great source of physiological health, felicity and long life. The entire Mosaic code is also suggestive and inculcative of the interdependence of the factors of these spiritual, moral, social, mental and bodily health matters. Divines and doctors know how intimately intertwined are soul and body, both in their sound and morbid conditions. Their hygiene is therefore equally closely commingled. They interact constantly, either to aid one another as in health, or oppose as in disease. The allusions to the different factors in hygiene scattered over the entire Holy Scriptures, like those of the Sinaitic code, are not purely typical but are also physiologically sanitary, in a large measure and secondarily.

The subject of Bible hygiene and the sanitary science of the Holy Scriptures is one that is both clerical and medical. It belongs to two domains, those of theology and medicine. And by unbiassed thinkers it must be conceded that while the theology, religion, morality, sociology, and mentation of God's Holy Scriptures are best studied and expounded and tuitionally inculcated by trained and educated Divines; so, too, as with other biological and physical sciences these Biblical matters, hygienic and otherwise, are best and most accurately read, weighed, interpreted, and expounded by Christian medical men, or at least professionally trained medical minds. Moses was a man of this stamp; gifted with both the mental grasp and the necessary medical knowledge to estimate correctly their individual and collective value and correlation: and yet this was not his principal office, nor was his chief rôle to teach hygiene. All truly devout minds, theologians and medical men alike, will agree with this. God's glory was the sole desire and aim of Moses in all that was given him to do, and should be ours; a work with which professional rivalries should not be permitted to interfere.

At the same time, as the subject is Biblical and theological as well as medical: and as the Divinity has ordained Divines not only to study the health or hygiene of the human soul, that of the human heart and its morality; that of the social life, and also that of wise mentation; but also entrusted them with the duty of aiding Man to combat their manifold pathological aberrations or diseases: while on the other hand it is the duty of medical men to combat or prevent diseases of Man's body; should it not be the duty of these two great armies of Divines and doctors to combine their studies and elucidate not only the subject of the Mosaic medical hygiene but also that of the entire Mosaic code and Holy Bible, not singly, but conjointly and in true Christian amity. It seems to be not only the duty but also

the interest of Divines and doctors to labour herein in unity. For are not the field and wide community in which they work, namely, the world and mankind the same. Are they not mutually striving to combat the same malign enemy, Satan, and his evil work, namely, sin? Is it not theirs to be mutually working under God therefore, as co-workers with Him, their labour therefore beneficent and God-like? Does not their labour often intertwine in body and soul, thus permitting them to be mutually helpful? Are they not both, each in their own sphere, aiding the great Physician of Souls and of Bodies alike in His Divine work of world-reclamation? Is not the banner under which both work, namely Love, identical? Do they not both serve under the leadership of Him who complimented one of the professions by styling Himself, not the Great Divine, although He was that above all, but the Great Physician? Is not medicine the handmaid of religion by leading souls to God; and should they not therefore combine to form twin, mutually reliant and helpful armies, working in common for the common good and for a common cause, that of Heaven and God; both sinking self in their efforts, and, like Moses, giving the entire honour and glory of the beneficent results to Him who prompts and aids their labour and makes it successful or not as He deems best?

Does not the fact that Jehovah is the greatest of all hygeists and sanitary legislators for the disease and health of the whole Man for all the race and every clime furnish still another reason for styling Him the Great Physician? Divines and doctors are both physicians; the former for Man's higher and the latter for his lower nature. Towering above both fallibles is their infallible and All-wise Master and Teacher, the Great Physician. For not only does He too often prove His power by shewing both that "without me ye can do nothing" (John xv. 5) by way either of prevention or cure; but that He is the sole controller of disease and they only His servants; but also condescends to teach Mankind individually how best to act and aid Him in His beneficent efforts; and gives them hygienic and curative laws to learn, or made expressly for this Divine purpose to combat the outcome of the human sins or soul diseases which Man initiated and his offspring inherits, and the body ailments to which Man became subject at the Fall, doubtless as among the punishments for disobedience and rebellion.

The Holy Bible is the especial handbook of Divines and its side issue, its hygiene, should be endorsed and taught by them as fresh evidence to shew how exceedingly modern and perennial the ancient Book is; and how often and much it anticipates modern ideas, medical and otherwise; no doubt intentionally to indicate its Source and Author and vindicate to willing receptive minds His oft-disputed authority and even existence; and to

furnish additional proof of the authenticity and reliability of Holy Scripture. The Bible often repeats its hygienic lessons; so perhaps have we. Biblical truths, whether theological or medical, like secular facts, often require frequent and forcible reiteration to ensure continued attention, full recognition, accurate inculcation, and hearty obedience of the convinced mind. The indifference shewn to these important hygienico-Biblical facts and contributions of the Holy Scriptures to the history of the rise and progress of medicine and our knowledge of its Author, amounting almost to rejection, is only a forcible instance and expression of a truth well known to both the Priestly and medical professions, we often put instruction behind our back (Neh. ix. 26). In Priestly eyes this indifference on the part of the laity to Bible hygienics is only on a par with their indifference to its theology. And it will only serve to emphasize the mandate for the Church, God's chief accredited organ, next to His Holy Word, for the education of His fallen offspring, "go ye forth into all the world and preach the gospel to every creature" (Mark xvi. 15) and incite them to greater zeal in the tuition of higher things. These two leading, learned, and noble professions have thus a noble privilege; the one to fully recognise, appreciate and act up to God's beneficent bequest, the Sinaitic code in its widest sense, as a complete hygienic code for human nature and for Man's every entity and his entire being; meant not for old-time humanity but for the present day and for all time: and so doing assigning it its true place and power and motive in God's Holy Book. And medical men to receive, study and apply its medico-hygienic portion in like fashion, and give God's contribution its due position in the early rise and history of hygiene and of medicine. While both professions award the Mosaic code in its entirety its due importance in the comprehensive story of the education of the world. Thereby giving Jehovah the full praise and all the glory clearly his due from His human debtors to their Divine Donor for exceptionally valuable and authoritative tuition by laws meant for the grand and double motive of continually refreshing and infusing new vitality both into the temporary physiological frame and into its immortal psychical tenant, the supernal soul.

The Holy Bible is God's Book. Jehovah is both directly its Author as He is ours for whom it was revealed. Nor can any mortal have so deep a knowledge of its contents; or so just an estimate of its eminently educational and practical worth, not only to Earth's earlier races but for now and all time; a testament whose value doubtless drew from the Saviour His advice to the multitude to "search the Scriptures" (John v. 39). It is not therefore possible for any mortal to value them too highly, study them too deeply, or follow their precepts too closely.

Hence also the reason for the initiation in early times of a priesthood: men specially selected and trained solely for His service; especially for the education of their less-favoured fellow creatures, the laity, in Divine things, and mainly in those divulged in His Holy Word. Nor could a better plan be devised for the translation of the Holy Bible and the propagation of an accurate knowledge of God, of Man, and their co-relation, past, present and future. This Divine mission and mandate makes theirs the highest and holiest of the professions; and them the best exponents of the theology of the Holy Scriptures. But the latter contain much more than Divinity. They are full of science, and and among these of medicine, especially medical hygiene; subjects which Divines, however gifted, cannot fully study, so extensive is it in modern times that even medical savants can only grasp one sub-division of one subject; even as Divines admit that one cannot fully master more than one book or even a few pages of Holy Writ. The opinion of Divines generally regarding any Biblical scientific subject cannot therefore be taken as final on medicine or hygiene any more than a scientist little acquainted with, or a doubter who disbelieves, regarding Holy Writ. That of a Bible-believing, God-fearing, medical man is more reliable. So, too, of other Biblical sciences and their exponents, such as astronomy, geology, chemistry and even Biblical theology. Learning alone will not suffice to accurately decipher Bible science. Its exponents must have their eyes opened to see light (Ps. cxix. 130; Acts xxii. 6) and also be Heaven-aided.

One great fact is especially worth attention. The contributors to the mass of Holy Writ were all Divines in one form or another. Only two, Moses and Luke, had ever studied medicine. Jehovah Himself is the chief Biblical sanitarian, and His information given in His own words. God's sanitary laws of the Pentateuch are therefore of special theological import; as the entire code may be regarded as Divinely sanitary for the whole of Man and the furtherance of his mission and earthly education. The hygiene scattered through the Bible is equally, though indirectly, Divine, because inspired. A noted example of the great value of the hygiene supplied by the inspired Divines of Scripture, is the undying passage by that greatest of all preachers, teachers and missionaries, St. Paul, where he describes, with the eloquence of a Master, the mutual relation of the different organs of the human frame to one another and to the frame as a whole and its immortal guest, in language and with a profundity and grasp unequalled by anything ever written in days past or present (Rom. xii.).

To Divines the hygiene, like the entire Holy Bible from its first to its last verse, and its every theme, is of intense interest

because they deem that the Book gives so many incontrovertible proofs of its Supernal origin and human-educational value. The depth, comprehensiveness, truth and value of the hygienic, medical and other scientific knowledge revealed in Holy Scripture is so great that it may be asked of this as it has long been regarding the theology of Scripture; where and how did these men who contributed to the compilation of the volume and to its sanitation attain to such profundity of professional learning. They were mainly non-professional, unlettered in medicine, in which, moreover, hygiene was in its merest infancy when they wrote. Nor can any other conclusion be arrived at except that the knowledge was inspired, Divine and revealed to them for the education and medical aid of Man; that education which the Divinity entrusts so largely to "Divines."

Both Divines and doctors realize fully how complicated Man is; and also how many different agencies are ever at work both in himself and also external to him to counteract all their efforts for his benefit, to prevent morbid aberrations or cure them; agencies that thus oppose both them and their Divine Master, Jehovah, in His beneficent work. Thus:—

1st. Man is a complicated, vitalized machine, composed of several curiously combined entities; including a spirit-soul enshrined in a physical body, both of which evolve mental, moral, social, spiritual and physiological phenomena; all mutually commingled, intertwined mysteriously, and delicately interacting on one another by their several functions both for good or evil, especially the latter causing disease of the soul, mind, morals, social life or of the more tangible body; and doing this in a manner hard to fathom, and harder still to control or prevent; but evolving thereby countless phases of life even in the same individual, making it necesary to judge each person separately, no two being exactly alike, but everyone somewhat and often exceedingly different, so much so that of all Earth's myriads no two moral, spiritual, social, mental or physiological proclivities or features are exactly alike or have to be cared for similarly to promote good impulses and avoid the countless evil ones of which the Holy Scriptures enumerate more than a hundred of the worst aberrations or sins, all familiar to Divines, regarding Man's spiritual, social, moral and mental entities, and over 1,000 of bodily diseases well known to doctors.

2nd. To those internal disease-producing agencies there

are many external ones that do the same, either *per se* or in combination with the internal ones. Thus how many evil agents, human and super-human, are apt to act on our spiritual, moral, social, and mental entities and conquer our good instincts and produce innumerable ailments and disasters. Again, how many external agencies, physical and otherwise, such as climate, &c., are constantly acting on our corporeal frame to produce innumerable pathological results by subtle modes and mysterious channels; both causing a multitude of ailments.

3rd. How often these external agencies combine with the internal ones to aggravate and complicate one another, and the ailments they originate is also fully recognized.

All this forms a necessary part of and inseparable from our fallen state and human probation on earth. These morbific results in our higher nature it is the domain of Divines to oppose or remove or minimize. Those of our lower nature lie in the domain of the physician. While both those who strive thus, and those affected thereby, are under the sway of the Omnipotent Being who not only made Man so complex, but also permits the internal and external agencies of evil now spoken of.

How fortunate for Divines and doctors to have such hygienic rules for social, moral, mental, spiritual and bodily hygienic guidance as those found in Holy Scripture to aid them in their reclamatory and elevating work; and the personal aid of the Divine to enable them to know how to interpret and apply these Biblical rules and aid their efforts in their often difficult task of inculcating hygienic obedience; and remedy the, in every sense, sad results of sanitary disobedience in one or other and perhaps every one of our human entities, so infinitely precious not only to ourselves, but to God, as often proved by His Divine Book, and especially by the delivery of this multiple code meant to enlighten our early ignorance; and initiate our education in the loftiest themes that can occupy the attention of our highest human faculties during our entire earthly career; as they are the most certain to lead to the highest health and happiness here and the Divine blessing and reward hereafter. God, the fount of wisdom, in His incomparable educational handbook supplies invaluable hygienic information to enable Man to help himself, and thus Divines, doctors and the Deity Himself in His race-reclaiming work, the very summum bonum of supernal beneficence, being, next to Calvary, the revelation of His royal laws of hygiene.

CHAPTER II

THE REASONS FOR THE REVELATION OF THE MOSAIC CODE

"All we like sheep have gone astray" (Is. liii. 6). "God is not willing that any should perish" (2 Pet. iii. 9).

One of the most prominent outcomes of that unique, laudable, and unquenchable thirst for knowledge, implanted by the Creator in Man, a craving given to be judiciously exercised, is a desire to fathom all that concerns himself and the race to which he belongs; and to solve the many mysteries with which humanity is interpenetrated and environed; some of which are half-disclosed in order that they may be more fully examined; others perchance being beyond disclosure in our present state of existence. The Deity has already allowed us to find out much, but doubtless we shall have to receive far more for ever in faith and trust. As with what God has left unwritten, so too with what He has revealed. No book ever penned enfolds so many mysteries hard to explain or supplies so much valuable information to dispel Man's ignorance as does His Holy Bible.

The preceding pages have attempted to unfold the inestimable value of the compendium of hygienic knowledge for Man's many-sided entity that forms part and indeed the whole of a code found in the earliest part of the Bible called the Mosaic code, delivered by Jehovah Himself to His "chosen" people, the Hebrews, through their Heaven-accredited leader, Moses, for a definite purpose. The actual delivery and therefore veracity of this we cannot for a moment doubt; as it was heard and witnessed by over two millions of Jews and aliens, and must therefore be received as a fully accredited and unimpeachable historic event.

The question naturally arises, what was the Divine reason and motive for the revelation of this remarkable code at this particular stage of Man's racial evolution. Why did God find it necessary to make this great landmark in human history by donating a system to prevent, lessen or cure spiritual, moral,

social, mental, and physical death and disease, not immediately or soon after the Fall when these morbid phenomena were first inflicted for sin, as new but now necessary factors in human existence, instead of 3,763 years later at Sinai?

The Holy Scriptures inform us that the human race was created, initiated, and inducted on this globe about 6,000 years ago by the special formation of a single pair. According to the Heaven-appointed natural law of increase, the race has multiplied so marvellously since, that it now numbers over 1,700 millions of souls. The Scriptures further affirm that about the middle of this period, that is about 3,394 years ago, or 2,513 years after the creation of Adam and Eve, God gave the race, who must have been numerous even then, the special code of laws or rules of conduct now alluded to. This notable literary masterpiece we find in the second, third, fourth, and fifth books of the Pentateuch. The code, or rather series of codes, were one and all adapted for the welfare of that composite creature, Man, a being who inhabits this physical world but yet is heir to another and spiritual sphere, Heaven: and there finds a complete and Heaven-compiled guide both for time and eternity. Really conceived by the Almighty, this was given avowedly to instruct and benefit, not that era and the Hebrews only, but Mankind for all time. On critical medico-historic examination this code, though ancient, is found to be neither antiquated nor obsolete and effete, but superlatively, authoritatively, precedential, innovative, comprehensive and universal. In its completeness this law was given by Man's beneficent, loving, long-suffering, and forgiving Creator and Preserver, solely for the aid of fallen rebel Man.

But here various apposite questions naturally arise in our study, the most prominent being, why did God find it necessary to instruct the Hebrews and give them and the human race this special sanitary and general advice? What were the precise conditions that suggested or demanded it? What necessity existed at that stage of the world's progress and of Man's history for this lucid and most beneficent boon? To answer these queries satisfactorily it will be necessary to give a brief resume of early human affairs; and include in this, necessarily in epitome, the early annals of medicine and theology; and first chapters of the history of the principal branch of the former, hygiene, or how to prevent disease. Thus only can we understand what and how much God has done by this bequest, and fully guage the Almighty's intense interest in and love for His human offspring by granting it.

The preceding pages contribute much to answer these questions. For they shew:—

1st. That the Mosaic code was not made for or given to a

pure, holy, God-fearing, God-serving race, but for one that had sinned, rebelled, was disloyal, unholy, impure, and needed both forgiveness and reformation. Also that the race in question was Man, who had fallen from the lofty place in Nature he first occupied.

2nd. That this fall and its consequences resulted from sin, induced in facile Man by wily Satan, Jehovah's arch-rebellious creation, and leader of other fallen angels.

3rd. That this event, so momentous to our race, forms a distinct and important incident in creation.

4th. That the introduction into the world of sin by Satan implicated and demoralized the entire Man, soul, morals, social feelings, mentation and body; one and all of which have become degenerate and morbid or diseased, and subject to death.

5th. That the Mosaic code is strictly hygienic or sanitary; its different laws, &c., being framed to prevent, lessen, or cure the aberrations of every entity and function of Man; and suited not only for every race and condition of life, but also for all time, not the present day alone, or the Jews only.

6th. That the revelation and donation of the Mosaic code is thus integrally connected with the history of theology, which studies and handles morbid conditions or diseases of the soul, mind, morals, social life and Man's higher nature; and of medicine which studies and handles diseases of the body.

The present enquiry therefore as to the object of the Mosaic code and its delivery at this special time in human history, have evidently to do with; *first*, Man's history, creation, introduction on earth, and subsequent life story; and *second*, the story of the introduction of sin, and its nature and consequences on Man. Secular ecclesiastical history does not enlighten us and indeed tells us nothing concerning the mode and date of the Fall or the introduction of sin or soul, mental, moral, social disease and death among the human race; not of the hygienic modes of opposing, counteracting, and curing these disasters of Man's higher nature, or why such a spiritual, moral, social, mental code like the Mosaic was necessary. Ancient secular medical history likewise tells us practically nothing concerning the first appearance of corporeal disease and death, nor of the hygienic modes of meeting and counteracting or curing these untoward results on Man's lower nature or body, or the necessity for such a medico-hygienic code as the Mosaic. In other words, the story of spiritual, moral, social, mental, and health and hygiene and of body disease, prevention and cure; and of what are known by the terms Divinity and medicine, previous to the time of Pytha-

goras, Hippocrates, and others, on the one hand, and the earliest theological writers on the other, is either wholly blank or uncertain. Secular history is altogether silent regarding the great and all-important factor without which curative and preventive medicine and curative and hygienic theology, morality, sociology, and mentation would have been unnecessary and therefore unknown on Earth; namely, the introduction of spiritual, moral, social, mental, and corporeal disease among mankind as an an immediate or early result of the introduction of sin in their souls and bodies. Nor does either history inform us how, why, or when the Mosaic code appeared. On all of these points regarding the early history of Man, his origin, fall, the genesis of human sin, its progress, of the punitive flood and dispersion, the delivery of the Mosaic code and its comprehensive motive, secular history more or less fails to impart satisfactory information. All secular histories open in a cloud of uncertainty, and are doubtful alike in their facts, dates, and personages. In this again, as in so many other matters, we turn to that matchless encyclopœdia, the Holy Bible, for information; and do not search in vain. Where secular erudition and science become lost in the mists of the past for lack of reliable material, the Bible takes up the clue and unravels the story in the clearest and pithiest language; carries us much further back than they do, and from secular obscurity leads us into the clearer light of Divinely inspired knowledge. For not only does the Bible carry us much further back in time, but leads us to the very fountain head of learning; pointing to the true source and rise both of theological and medico-scientific and practical lore; telling its story in precise and definite terms, and giving a narrative of the utmost import to both by fixing the date, place, origin, and cause of the introduction of evil among mankind, with its many dire and unfailing results, spiritual, social, moral, and mental morbidity on the one hand and corporal disease and death on the other. The opening chapters both of theology, a science co-temporaneous with creation; and of medicine, a science co-eval with Man, are to be found only in God's Holy Bible. From the sacred volume we derive some very important knowledge regarding the main factors of our present subject; namely, on the one hand about the life, death, health and disease, both of the soul, mind, morals and social life and those of the body; all of which Man brought on himself: and on the other about Him who not only created Man but also originated and now permits these real and deserved but still obnoxious phenomena to exist; matters of the highest human interest and import, theological and medical, to be learnt nowhere else. Among these it tells certain vital facts regarding God and Man of the utmost importance in solving the questions we are now considering. Thus—

1st. It informs us, as no other book can, about the Omnipotent, Omnipresent, and Omniscient God who created us and all else. That His chief attributes, viz., Love, Justice, Mercy, and Truth, dominate all that He thinks, says and does: and explain His attitude and conduct towards and dealings with His human offspring. But for God, the Creator, Nature and Man would never have existed; nor could he continue to exist, "for in Him we live, move and have our being" (Acts xvii. 28). it tells us that God is a Being whom Man should not estimate by human standards (Numb. xxiv. 23; Job xxxiii. 12); that He is a spiritual being to whom time (Deut. xxxiii. 27), space (Jer. xxiii. 24) and size (Jer. xxiii. 24) are as nothing.

2nd. The Bible explains Man's dual nature; and avers that he now consists of a material perishable body or highly vitalized machine, which forms a temporary dwelling for its guest, the immortal soul or true human being.

3rd. That Man was originally created to fill a definite and lofty place in Nature, and fulfil a lofty destiny and rôle in creation.

4th. That this was soon marred, partly by Man's own folly and partly by the guile of Jehovah's arch enemy.

5th. That, though fallen, we may still escape from the Satanic meshes of sin and its innumerable morbid consequences; and should therefore struggle to be God's, as He still controls our souls and bodies and their life, health, diseases, death and destiny.

Though the Holy Bible is a comparatively short book considering the extent and diversity of its subject; no volume ever printed tells such a very long story. For this reaches from the very beginning of all things in the long distant past, to the end or outcome of all, in the immeasurably distant future: and does this with its usual pithy brevity, and conveys the mightiest truths in the fewest possible words, the long history of a race for example being given in a chapter, verse, or even single sentence, which conveys all that is of permanent interest concerning them. It shews, above all things, and gives as one of the most important of all truths, humanly speaking, that the only true and lasting success not only of persons, families, races, worlds, nay, of the entire spiritual creation to which Man did and still belongs, is interwoven closely with their allegiance to or their disaffection from the God who is both their Creator and Preserver. This fact applies to Earth and Man who lost His allegiance.

Bible study brings into especial prominence the close alliance that exists between hygiene and holiness. The familiar, trite,

and true saying "cleanliness is next to Godliness" is a maxim that has a far wider application than usually supposed. For, besides cleanliness, it might be made to include every one of the other factors both of public and private sanitation. And it would be no exaggeration or misapplication of a scientific definition were the well-known and correct proverb to be expanded, made more comprehensive and converted into "hygiene is next to Godliness; look at that adage and term as we may. Nor is it far-fetched to aver the "hygiene *is* holiness" since it is one of Man's chief duties to reverence and obey the hygienic laws made by God; this obedience being one and a by no means slight proof of our Godliness. The Mosaic laws were framed, not to induce and promote physical cleanliness only, or that of the body only, but for the far more important purity or cleanliness of the higher nature, the soul, morals, social life and mentation. That hygienic system only is complete which implies and includes cleanness and healthiness of the immortal soul as well as that of the temporary mortal body: purity in all things, earthly and eternal, material and spiritual, of the guest as well as its dwelling. "Seek ye *first* the Kingdom of God and His righteousness and all other things shall be added unto you" (Mat. vi. 33; Luke xii. 31) is a Bible truth that involves high and pure living of every entity; the reward of which secular history confirms. For it proves that from the earliest times the countries which are the most civilized are and always have been those most highly advanced in hygiene of the comprehensive kind. For God-fearing people not only follow His hygienic laws for body health, but those also for spiritual, moral, social and mental salubrity; and manifest not only the highest body sanitation and vigour, but also the greatest happiness and success in the higher hygiene and its customary outcome and blessing, "those who honour me I will honour" (1 Sam. ii. 30; Prov. xxii. 4). Those peoples who usually take the lead in the world's progress and enlightenment are such as are the most Bible-loving, Scripture-searching, God-fearing, and law-obeying, and hygienically pure in higher matters. At the same time let us not forget that success, military and otherwise, does not always follow the worship of God: nor does idolatry always induce military discomfiture, as seen by the case of the ancient Romans. Success is in God's hands and often follows what seem to us devious and mysterious ways; for now "we see through a glass darkly" (1 Cor. xiii. 12) and often misunderstand His dealings. The hints, helps, promises and rewards of the Holy Bible, hygienic and otherwise, most likely to conduce to success of the higher kind have been, still are, and always will be free and open to all, nations and individuals alike, ever since the Pentateuch was framed; so that whoever feels they have need of hygienic advice

and counsel, spiritual, moral, social, mental or physical, and shew a willing mind to act thereupon, it is there and ready for acceptance.

To understand fully how the human race has responded to this Divine prescience and love, and God's motive for the donation of this superb and unsurpassed law for human conduct on earth at this comparatively late epoch of human evolution, it is therefore necessary to take a wide survey and study not only the previous story of the race and its development, but also the antecedent story of the creation of which he forms part, and to us the most important item. The Holy Bible is the only book on earth that can supply this information.

The student of human history, from a Scriptural standpoint, cannot fail to notice that two evident and most important objects are aimed at by Jehovah throughout the entire Bible narrative. These are to shew, *first*, that God not only made but personally preserves and desires to wisely govern Earth's chief inhabitant Man, both racially, nationally, and individually; as He also does his home, the world, and inferentially all nature and the innumerable systems and orbs and inhabitants of creation: *second* and inferentially that this, though generally true, is especially so with those orbs and intelligences that keep their innocency and allegiance, and continue to honour, love, serve and obey Him; which, alas, Earth and Man have not done. In accord with this, orbs and races, nations, tribes, families and individuals, are either rewarded or punished according to their deserts. It is therefore both interesting and instructive to study the early general history of the human race from this point of view, by aid of the only volume that supplies the desired information, namely the Bible; to ascertain whether Man's record is good, bad or indifferent. In this we find that the super-sinful human race in the course of time had, through unrestrained evil, become so demoralized, vile, ignorant, rebellious, and lost to all that is ennobling, enlightening and Divine, that they persistently and repeatedly refused Heavenly advice, direct and indirect, and despised God-inflicted punishments meant to prevent complete spiritual and corporeal ruin, utter alienation from God, and neglect of all that is truly good and worth living for. The Bible further shews that this comprehensive hygienic instruction was received, as was the soul, body, life, health, home and happiness and all else, from the best of all sources and kindest of friends; their long-suffering and ever-merciful Maker, the fount of wisdom, power and love. Also that it came through the Hebrew nation, and their sage leader, Moses. But in order to illustrate this fully and satisfactorily it is necessary to briefly review the Bible story of Man's creation, racial development, spread and early history still more closely. The narrative is

highly instructive, as it shews God's attitude, love and kindness towards His handiwork, Man: and also sad, as it illustrates Man's attitude, utter depravity and ingratitude towards his Maker. In this brief review the Bible text will be closely followed; and, whenever possible, Scriptural facts and deductions will be illustrated by Scripture, in preference to human opinion. For where is the savant who has yet proved the Bible to be wrong? And in what point, especially regarding its medical and sanitary maxims, can any true flaw be discovered by experts?

Bible history is divisible into well-marked epochs; which it is well to follow in studying its medical history and hygiene, and the causes that led to the divulgence of the Sinaitic hygienic code. Man's primeval history is inseparable from that of the creation to which he belongs; and thus we must go aback to the very "beginning." This and the 23 centuries from his creation down almost to the final settlement of the Hebrews in Canaan, may be broadly divided into the following eight periods:—

1st. Era the pre-Adamic.
2nd. „ the Edenic.
3rd. „ from the Fall to the Flood.
4th. „ „ „ Flood to the Dispersion.
5th. „ „ „ Dispersion to the Exodus.
6th. „ „ „ Exodus to Delivery of the Law.

Hale's dates will be followed mainly; although it matters little for our present medico-historic and non-controversial purpose what chronology is followed; because at present all of these early periods are more or less approximative.

1st Era, the pre-Adamic: from which we learn Earth and Man's place in Creation.

Science or the study of God's works helps largely to endorse His Holy Word on certain vital points: and in nothing more than in combining to affirm that the three chief attributes of Man's Creator are that He is in the highest degree loving, omnipotent and creative. The necessary outcome of these is shewn by His ceaseless activity or work and His continually "doing good." The first practical expression of these attributes occurred "in the beginning" of the creation of beings and worlds, a word which conveys the idea of a period so remote in the eternity of the past that the highest imagination and most brilliant talent cannot conceive it, and Man's finite faculties fail to fathom its depths, and whose immensity the all-powerful intellect of the Deity alone can grasp. Then, as the Scriptures tell us, He began to fashion what we term Nature, of which Man is a figment and also a comparatively late outcome. All created things have a history of more or less interest and importance; a

place in Nature; and a purpose. Each of the myriad star-groups, orbs and satellites around us, whether inhabited or not, has its own special story and doubtlessly widely different narratives. So, too, has the world we inhabit, that we with a certain amount of right, style ours, because it was fashioned expressly for the race, which also has its own story and definite rôle in creation. Of the evolution of the spirit world we are told little. But, doubtless by slow accretion and condensation of the widely diffused and highly attenuated interstellar Ether, God evolved the physical "Heavens" (Gen. i. 1), star-groups, constellations and suns; those myriad orbs of varying size and importance that bestud creation. We may presume that He then peopled them with intelligences of various grades and varied capabilities, as part and doubtless the main aim of this stupendous and elaborate work; labour doubtless even now in progress. The Creator has seen fit to give us a very brief yet pithy account not only of Creation generally, but also of our Earth's rise and progress; and of what is of the utmost interest to us, a record of the human species. This Biblical narrative is eminently worthy of study, as indicating Man's nature, original place in Creation, and as supplying the best contrast of what he was and is now, what he possesses and has irrevocably lost. Genesis carries us back to the very "beginning," not of God but of all created things (Gen. i. 1) when the Triune Spirit-creator first began to form and manipulate matter and evolve the beginnings of the physical world and mould the first of those myriad stars that now astonish us by their number and puzzle us about their history and destiny. Among these orbs, and at an era so remote as to stagger the most brilliant human imagination He created a star which specially interests Man; namely, the sun, a comparatively small orb contrasted with some; poised on the outskirts of one of the great star-groups; that named the Milky Way. From that sun, at His own good time and pleasure He evolved the Solar system and elaborated its series of planets and satellites. Among the latter smaller orbs He formed the planet which chiefly interests mankind because it is their home, the Earth. The brief and condensed yet suggestive and pointed chronicle goes on to tell the special story of what evidently was then the most recent celestial body, Earth; at a period, humanly speaking, very remote and probably embracing many millions of years, but yet only a fraction of the eons that had probably elapsed since God begun the creative work spoken of in the same verse as "the Heavens" (Gen. i. 1). Earth it tells us was "without form and void" (Gen. i. 2), that is without definite shape, arrangement and barren of living things. Then it describes its gradual evolution and development by successive stages or geological "days," that is period of time, five in number, the length

of which geologists will probably be never able to precisely determine. And then of its subsequent occupancy by a series of living forms of progressive complexity of organization; first by the vegetable species, then by the Animal Kingdom. Having satisfactorily finished this physical, geological, animal and vegetable work during six long geological "days" or long ages, and seen that it was all "very good" (Gen. i. 4) and fit for the beings He meant to occupy it; the Creator next proceeded to finish His earthly fabric by creating its biological copestone Man, the being for whom Earth was specially evolved. Star systems, suns, planets, and the beings that inhabit them, are thus all alike drawn primarily from the star-depths by the physical accretion of its very diffused and highly attenuated but yet tangible gaseous matter, variously combined as the Creator willed, and partly organized and imbued with spiritual and biological life, one or both, each and all of the resulting forms having its own special rôle and part to play in the mighty economy of Nature. Revelation does not specify the time that has elapsed since Creation began, or even the age of our central luminary, or that of Earth; and neither astronomical, geological, nor physical science can with certainty solve these problems: fortunately of interest only and not utility.

2nd Era, the Edenic; Man's creation and life in Paradise. The Holy Scriptures lay special stress on this, and give the story in considerably longer detail, quoting first the original Jehovistic idea "let us," the Trinity and perhaps other celestial intelligences, make Man "in our own image" (Gen. i.). The Divine fiat chronicled a new creative departure, namely the original formation of Man in the spiritual likeness of his Maker; and "only a little lower than the Angels," his defined and recorded place in Nature. The human spirit or soul being thus the true Man, Heaven from whence that came was evidently his real home and source, as it is meant to be in the future; Earth being merely a school and place of temporary exile and probation, the birthplace of his body, as it will be its ultimate tomb, when the soul leaves for a higher or lower plane of existence. Man having been created a social animal, a fitting "helpmeet," or woman, of similar mould was given him by a second special creation or development from Man's own frame (Gen. ii. 21). Man was developed from the inert ground (Gen. ii. 7); woman from Man's fully organized and living flesh and bone (Gen. ii. 21). By these two beings, both immortal "living" souls (Gen. i. 30) sent to dwell and be educated for a time in earthly bodies, was the human race begun, to be perpetuated by another constantly recurring and wonderful miracle, human generation. Whatever may be the final decision regarding the rest of the animal and vegetable kingdoms, the Holy Bible leads us unmistakeably to

infer that the first male of the human species, and subsequently his female companion came into existence as "special" creations; the last and greatest efforts of all God's earthly work. Man is a being who not only combines the most complex animal organization of Earth, with the most highly animated of all lives; but differs mainly in being the temporary abode of that which then resembled and was doubtless an offshoot from God, namely a spirit or soul. On this primal pair, as on all else who continue to deserve it, the Almighty lavished His mighty love. With true paternal yet God-like forethought He had made for them a special home or Paradise, beautiful, comfortable and pleasant, named the Garden of Eden; conjectured to have been located in South Western Asia. There they had neither to work nor worry; for they were compassed on every side with kindness. Their life was one of uninterrupted happiness and enjoyment of Nature's beauties. God furthermore honoured the beings He had thus carefully fashioned by beatifically communing and walking with them (Gen. iii. 8) in paternal fashion. The primitive, human pair were originally guileless, pure, sinless, holy, obedient and happy as they walked and conversed with their Maker, doubtless either unseen by them or clothed in Angel form, as subsequently to Abram and others. And we may imagine how pleasant, ennobling and Divine was the intercourse, doubtless mainly spiritual and educational in its nature, and intensified by their mutual, God-bestowed and Heaven-blest love. How fortunate were they to have such a teacher! Yet how little they valued the boon; how soon and how easily they lost it!

As the care-free pristine pair thus idled, or worked and tilled the garden, or walked amid its beauties with their unseen Maker, their souls were free from spiritual, moral, social and mental disease and death, and their bodies from physiological death, disease, ageing and pain. Theirs was a semi-angelic existence, free from every annoyance; a life of perfect peace and felicity; of sweet intercourse with each other and their Creator: both fulfilling the rôle and learning the lessons for which they were placed on earth. They were doubtless a model pair and perfect, physically, physiologically, mentally, morally and mainly spiritually; exactly what the Creator meant them to be. If it was meant they were to die at all; how long they were destined to live; how at last they were to be transferred from Earth, by a painless death or by translation; and how the human race was to be developed we are not informed. From the Bible text the main facts we may fairly infer under which Mankind originally began their once lofty destiny were:—

1st. His creation marked a wide gap between him and the lower animals, as he alone was made in God's "image"

and "likeness" (Gen. i. 21; v. 1; i. 26), phrases which evidently mean that on him was bestowed reason and intellect of a very high order; and, above all, a responsible immortal soul or spirit, which linked him with Heaven and made him part of the invisible spirit world as well as a denizen of Earth.

2nd. He had the friendship, love, care and protection of the Creator, who thus walked and talked with him in Eden (Gen. ii. 16-17), thus shewing that Man in his original purity was deemed a fit companion for his Creator.

3rd. He found in Eden a perfect environment, model home and Paradise in which to live; combining ease, beauty, health, abundance, happiness and all he could reasonably desire.

4th. To all this was superadded suitable human companionship, intellectual, spiritual, moral and social in the "helpmeet" made expressly to cheer, comfort and aid him (Gen. ii. 18).

5th. He enjoyed the peace of mind, heart and soul and the calm outlook which "passeth all understanding," ensured by perfect love of God, thorough holiness and complete freedom from sin.

We may perhaps best realize the bliss of Edenic existence by pointing out the disagreeable features it lacked, so familiar to earthly life now. Their career embraced no pain to fret, no disease to vex, no death to dismay, bring separation and sorrow; of which they could only form a faint conception from the Animal Kingdom. Each enjoyed a clear and fearless conscience towards God and each other; untinged by remorse for past, danger of present, or fear of future sin. Heart, body, soul and mind were alike at ease. The sins and sorrows that now contribute so much to sadden life were then unknown; and all this was to be enjoyed by their offspring.

But how short-lived this innocence; how brief this pleasing picture; how evanescent this model home, this happy state, this Arcadian idyllic supernal life, this promising future, and all that gave something more than a mere foretaste of Heaven: for it was practically Heaven brought down to Earth. Thus far Man enjoyed uninterrupted health; for disease, its accompaniments and sequels, pain, death and all the woes that these inflictions involve were then unknown except as incident to the "beasts that perish." Man's soul was pure, his heart happy, and his life one of uninterrupted enjoyment. But a disturbing agency soon crept in to mar this. A new actor, Satan, appeared on the stage; an enemy in the guise of a friend, with persuasive blandishments and flattering tongue; to instil suspicion and distrust into the minds of the innocent Eve and Adam (Gen. iii. 1).

Temptation followed and they fell into sin; disobeyed God's commands, became disaffected and discontented with their lot and position. This "fall" from the Divine favour was soon followed by expulsion from Eden and the withdrawal of several very important items from their pristine attributes. How facile they were; how speedy their fall; how momentous the results! The story is worth study because, *first*, the entire human race suffers and always will suffer from its effects. *Second*, the first story of God's Holy Bible is a lesson, warning, and example of what has often happened since in various guises. And *third*, we thereby learn something of the greatest professional interest and import to theologians and medical men.

A record and contrast, however brief, of the experiences and feelings of the primal pair before and after the Fall would have been intensely interesting: the former to act as an incentive for us, their progeny, to follow ardently after righteousness, and the latter to act as a warning, not to follow their example but strenuously obey God's commands and thereby avoid sin and its sad consequences. It would be difficult, nay, impossible, for any mortal now to fully realize their spiritual, moral, social and physical condition in Eden: or to clearly imagine the bliss of the life they then led in a condition of soul and body, which no mortal save these two hapless beings ever knew. No one could possibly conceive or pen their perfect happiness before the Fall, or their utter misery and discomfort after that event; all the more unendurable by the contrast which they alone could draw. Nor is it altogether chimerical, Utopian and Arcadian, but, on the contrary, both practically useful and suggestive for us to individually ponder what this life and this Earth would have been; and what they might become were there no sin and its many dire results. Thus alone may an estimate, though imperfect, be formed of what human existence was in the earlier sinless days of Adam and Eve; and what it would have continued to be but for their folly. How Edenic would our individual lives, homes and communities be if freed from sin, and the trouble sorrow, sickness and death it entails. How prosperous in every sense would our own and other nations be without vice and the poverty it often entails, especially among the masses. How brother-like would the many different races of mankind be by a total removal of human sin and passion from the midst of jealous rival nations. How Paradisaic would be the sum-total of this on the world at large; and if the soul atmosphere were still like that of Eden, and the vice so obnoxious, not only to God but also to Man, were removed. If the Edenic life can never be fully regained, is it not our individual, communal, national and racial interest to attain the nearest approach to it, of which Heaven-blest and God-aided human nature is capable? If so, the effort

resulting in effecting this foretaste of futurity and making a Heaven below, must first begin in and thence radiate from our souls and hearts. Do not let us be too censorious of Adam and Eve; for alas how often we too spoil our own Edens and cast away our earthly felicities!

Satan's wiles and human folly marred God's loving and wise designs. That arch-deceiver flattered and tempted the primal pair. They doubted, then disobeyed God and fell; thus lapsing from grace and innocency. Their early and brief Elysian life was thus and then ended: their Paradisaic home lost. The brief physiological era of human life was over. The pathological period had begun. And various sad results accrued not only to them but also by inheritance to all the race. They could no longer live a perfectly placid, happy, holy, healthy and lengthy life, in sweet converse with their Maker and Educator; and then perchance be painlessly translated to a higher sphere, like Enoch and Elijah, when they had finished their earthly probation. For they were now rebels against their Maker, aliens from Eden, servants of Satan, and prone to sin, subject to the innumerable forms of spiritual, moral, social and mental disease and death: their bodies likewise liable to pain and the many forms of physiological disease, and so to certain death and the grave. Man had now to toil for bread; and had to work to eat. It was no longer unalloyed, private, social, and spiritual bliss to live. The Bible story of the Fall is no fable, but the recital of a historic fact fully confirmed by the traditional history more or less akin to it, found in the early lore of every race, savage and civilized, under the sun.

For this sad and regrettable sequel we have not God to blame. His adversary and ours, the archfiend and author of universal sin and evil, namely Satan, was the successful plotter and tempter. His weapon was flattery; their weakness conceit. Many, perhaps most of us, would have been as facile, and done the same. The story is told as a lesson and a warning of universal human frailty in contrast with that of the Pattern Man (Heb. iv. 15). What would have been the future of Adam and Eve and their progeny had the former resisted Satan, it would be waste of time to enquire into. Our present interest centres more in the morbid results of the Edenic catastrophe. The second era in human history thus ends disastrously. The disobedient and practically rebellious pristine pair failed to walk circumspectly and to reach God's standard but fell from their allegiance and were debased and degraded by expulsion from Eden and a material diminution of their gifts and privileges, combined with certain material punitive measures. This brings us to:—

The 3rd Era of human development, reaching from the Fall to the Flood; thus extended to A.M. 2349, *i.e.*, over 16 centuries. What is the record of this epoch? For their defection and disobedience the Bible narrative informs us God did not destroy the still prospective human race by in some manner wiping out the initial pair, as He might easily in His just anger have done, and as, humanly judging, we may say they deserved. On the contrary He who sees not as Man does (Job x. 4) but knows the end from the beginning (Is. xlvi. 10), evolved good out of seeming evil. Man having foolishly, wilfully and sinfully altered his relation to God; the Paternal Creator necessarily altered his relation to Man. As a God of truth and justice He was compelled to punish the race. But as a God of mercy and love He determined to try to reclaim and bring them back to a willing obedience. The former, the punishment consisted in inducing materially changed conditions and relations of life, present and future. The latter, His great scheme of salvation, embraced a lengthy plan which it is not our intention to discuss here, except incidentally. Man, that is Adam and Eve and their progeny yet to come but soon to appear, had now entered on a totally different career, and taken an entirely new departure, spiritual, moral, social, mental and physiological. Those altered conditions of soul and body, towards God his creator, towards Heaven from whence he came, towards the Earth he now inhabited, and towards his kindred fellow men, embraces the following important changes:—

1st. They lost the friendship, companionship, conversation and advice of their Maker, the God whose threefold essence is Love, Wisdom, and Truth. Jehovah no longer deigned to walk and talk with them as of yore. They were now consciously changed creatures (Gen. iii. 7-13) and afraid of Him they had disobeyed and against whom they had sinned. God and Heaven regarded them as rebels, as beings who had degenerated spiritually, morally, socially, physically and physiologically; who no longer possessed His "image" and "likeness" but had themselves altered their place and rank in Nature; had undergone self-degradation and effacement in the scale of creation; had voluntarily changed their future prospects; had caused the Divinity to seriously alter His beneficent plans for the race and to inaugurate a new dispensation. God no longer gave either the primal pair or their progeny free and direct advice in difficulty and danger, or gave constant personal counsel, except occasionally and indirectly by special servants or Divine intelligences, or by revelations of different kinds, oral and documentary.

2nd. They lost the blissful perfect assurance of having Heaven as their future home; and God's closer companionship and sway.

3rd. They lost their happy and beautiful Paradisaic home in Eden; forfeited their easy, contented life; and for ordinary sustenance had now to labour and toil for bread by tilling the soil.

4th. Their souls had lost their purity, innocence, ignorance of and freedom from sin; with its perfect trust in and love for its Maker: and had become degenerate, prone to spiritual and moral sin, and liable to its results, spiritual, moral and social disease and death. They had self-marred their own image and spiritual, moral and social likeness to the Creator. Their soul was no longer healthy but marred by sin, disease-stricken and leprous. They had undergone spiritual, moral, and social degradation.

5th. Their bodies, the temporary and material abode of the soul or real individual became no longer proof against disease and death. Its complete healthiness and morbific immunity were undermined. It had lost its inherent congenital and hereditary Vis Hygienica or health-preserving, disease-resisting power. It had become physiologically degraded and degenerate, both mentally and corporeally, was no longer invulnerable, but prone to many widely different ailments arising, some from internal causes, bodily or mental, and others from external agencies: amenable also to pain and many other direct and indirect results of disease. Moreover, it had lost either its inherited and God-bestowed immortality, or the priceless privilege of having a painless and happy Enoch and Elijah-like translation from Earth to Heaven on the completion of its earthly probation; and had now become subject to death and dissolution of body, like the lower animals. Eve, because she was the first to sin, and alas her feminine posterity also were additionally punished by having to undergo the pangs of labour (Gen .iii. 16). Women had henceforth to bring forth in sorrow and pain. In short, the brief, purely physiological era of Man's existence was now over: and the pathological period that now prevails had begun. But no history, even Biblical, furnishes a clue to the date of the appearance on the creative scene of earth of any special form of ailment, even of that large and important class of diseases of animal and vegetable parasitic origin, which affect either some part or the whole of the human

frame, and thereby originate a very large, important and deadly class of ailments, including those which are not and others which are more or less infectious and contagious; the latter comprising some, and especially one, leprosy, to which frequent allusion is made in these pages, because of it the Holy Bible speaks so much and so forcibly. Possibly, however, the creation of these animal and vegetable parasites was long anterior to Man; and is to be dated back to one or other of the five previous geological "days" of Creation, especially the third and fifth. And, like other morbific agencies, internal and external, their noxious and insanitary action during the brief, invariably healthy career of the primitive pair in Eden was completely negatived and made inoperative by the all-potent Divinely-implanted *Vis Hygienica* or disease-averting power of that pleasant idyllic period. Now, too, it became necessary to oppose these twin and dire evils of life, disease and death, by medical methods, curative and hygienic; as well as by altered conditions of life and living and their environments; thereby introducing innovations which led to the origin and development of two new and distinct arts and sciences, those of theology and medicine.

6th. Unfortunately, by God's decree, the offspring of the primal pair were also doomed to inherit the sin thus and then introduced; its sad results on soul and body; and its momentous effects both for time and eternity. Spiritual, moral, social and mental depravity; corporeal pain, disease and death, and all their consequences now formed part of the birthright and heritage of every human being (Rom. v. 12). Human life had now become a tragic drama, in which torpor of soul, weariness of body, sickness, sorrow, pain and shortened lives, were among the ruling features.

The introduction and evolution of human disease and death, spiritual, moral, social, mental and corporeal, as prominent factors in human history, thus clearly mark and date the beginning of the history of medicine and hygiene. In their widest acceptance Human and medical history are practically coeval and intertwined. Both from a secular standpoint are lost in the chaos and mists of antiquity. This traces medicine back to Pythagoras, who flourished B.C. 555; or Hippocrates, the "father" of medicine, born B.C. 460. But it can say nothing of the preceding lengthy period from Eden downwards. For this we might ransack every secular library and volume in vain. Fortunately we are not left in utter difficulty and doubt. For

Heaven and God's Holy Bible supply what unaided human knowledge fails to find; and throws a flood of light on early medical as it does also on early political, social, civil and religious history. Thus and there, as in many other subjects, we glean, if not all the information we want, at least as much as God in His wisdom and love has seen fit to enlighten us with regarding both early theology and medicine; including matters of the utmost import about which Man would ever, to his great detriment, remain in utter ignorance. Thus the sacred medical record carries us back to the Fall, and settles the most important and fundamental question in medicine; one on which secular medical history is altogether silent because ignorant. For the latter fails to tell us aught of the introduction of disease and death into the human programme; or where, why, when and how they first appeared. But the Holy Bible gives the desired information. And this is certified by the best of all authorities and guarantors, the Deity Himself. The most veracious witness is necessarily an onlooker; the very best of all a participator and chief actor. This is Jehovah Himself, who, as chief agent and creator, with His own mouth and by the pen and intellect of Moses, tells us the sad story in the pithiest and most pathetic, yet simple and eloquent language. Again, if we turn to the Pentateuch and the autobiography of Moses, especially during the years B.C. 1491 to B.C. 1451, that is to a period about 1,000 years before Hippocrates and 900 before Pythagoras, we find that God gave Man a code of hygienic sanitary or preventive laws; largely but not solely directed against leprosy and other then and now prevailing bodily ailments; but also legislating deeply and wisely regarding Man's higher sanitation, that of his soul, mind, morals and social life. These laws were penned by Moses at least 3,350 years ago; and yet are of such simplicity, profundity and wisdom that no medical man of this or any previous age could compile or generate their equal; because they emanated directly from the comprehensive intellect of the Supreme and are of Heavenly, not human, origin. It seems impossible for Man to obtain or desire more eminently satisfactory information. The early chapters of Genesis, and indeed the entire Pentateuch, teach us much regarding the early history both of theology and medicine; especially about the special hygiene that concerns both. Much of this educational information is not directly given but only inferentially gleaned by suggestive facts and incidents related in the mainly historic and biographic narrative. Although much is necessarily omitted that man fain would but yet never shall now be able to ascertain regarding both theologic and medical hygiene and the sanitation of Man's higher and his lower nature.

The Bible story shews that Adam, and doubtless Eve, were not ignorant and uncouth savages, but inherently and highly intelligent and cultivated beings, whose knowledge, both intuitive and acquired, doubtless by Divine instruction and personal observation, was such that he was able, aided no doubt by supernal help, to name all the animals brought to him. Very possibly his knowledge of medicine, intuitive and acquired, was also considerable, and possibly equal to his evident mastery of zoology. Most probably, as disease was one of the chief punishments for sin and Adam and Eve's transgression, his knowledge of medicine had to be acquired and developed by the experience of a gifted mind, even as it is now mainly learnt. At least we have no evidence that Adam had special Divine teaching in medical matters as in natural history; or as Moses had over 3,500 years later in hygiene. Clearly from intuition and Divine teaching Adam was far more highly educated and advanced than his progeny for many a day; and though there is doubtless a noticeable ascent now, Man has undergone a very marked descent since primal times. To short-sighted humanity this may have seemed the proper time for a hygienic revelation such as the Sinaitic code of 2,500 years later on. But prescient Jehovah, who sees the end from the beginning, knew better and had planned otherwise.

The expulsion of the pristine pair from their once Paradisaic but now ruined home, disgraced, demoralized and degenerate, both in body and soul, was followed by the commencing and normal multiplication of the race. But among these the alluring leaven of inherited indwelling sin began ere long to do its fell work and more or less leaven the entire human family. Cain's awful crime, defection, and emigration as the black sheep of the first family and an alien from God, to found a colony, perhaps a nation or nations elsewhere, was Sin's earliest record of success. Man's subsequent spiritual, moral, social, mental and corporeal record of this period is a sad one. His fall from the emience in one and all of these gifts with which God had originally endowed him, was evinced by an early, combined and progressive degeneracy in all of them. In his body or earthly entity it manifested itself by an increasing tendency to disease and a diminishing longevity: and in his higher nature by a widespread and increasing proneness to sin in every shape. For the sacred text tells us that as men multiplied they departed further and farther from God and became more and more unlike the first pair, and even worse than these exiles from Eden. Jealousy, hatred, malice, unbridled and unholy, Cain-like crimes and passions that would not be curbed, began to rage and afflict these chastened parents: although the ever just narrative gives now and again a more pleasing glimpse of better

things. For Adam and Eve, after their expulsion from Eden, evidently repented and did not again forget and slight their Maker and Judge, but continued both to acknowledge and serve Him. The great and irrevocable lesson of their lives which taught them that they would fare badly and, indeed, could not prosper at all without God's blessing and aid, had not been lost, and doubtless lasted to the end of their earthly career. So when Cain was born Eve said "I have gotten a man from the Lord" (Gen. iv. 2); thus acknowledging the Deity in the advent of her first-born, the first-born of the race, for whom she had subsequently so sorely to grieve. That Abel followed her in Godliness is shewn by the record of his "accepted" sin offering, which proved that he was a humble believer in God and a strict observer of His ordinances regarding sacrificial offerings. Even the unaccepted fruit-offering of Cain, to which God had no respect, because he was evidently a proud despiser of the Divine methods, also shews this. So even does Cain's departure from the region of his birth, and from where the ordinances of religion then in vogue were evidently maintained. So likewise does Eve's remark many years later when Seth was born, "for God hath appointed me another seed instead of Abel whom Cain slew" (Gen. iv. 25). A subsequent verse "then began men to call upon the name of the Lord" (Gen. iv. 26), which evidently means to call themselves by the name of the Lord, indicates a recrudescence in religion and proves that up to that period mankind, especially the first family, had not wholly forgotten God or ceased to fear, serve, and possibly love Him.

But still serious human degeneracy had begun. For though the race continued to multiply in accordance with ordinary biological laws, their offspring no longer retained the primitive "likeness" of their Maker (Gen. v. 2); but possessed more or less the degenerated and degenerating similitude of their earthly parents. For when 130 years old Adam begat a son named Seth, in whom much interest centres, because from this Patriarch, their progeny the Jews, and ultimately the Divine Hebrew Christ descended. The fact is emphasized that this son of Adam was in "his own likeness, after his image" (Gen. v. 3); that is not after the likeness of God (Gen. v. 2), in which Adam and Eve were created and originally intended for his offspring: a contrast clearly given to shew that the consequences of Adam's sin were not limited to the original culprits, but involved his posterity in accordance with the now well-recognised and irrevocable laws of heredity. When Adam must have reached the mid-age of that day we find that God was still not entirely forgotten. He still had a seed left to serve Him. Earth still had some who were true to their Maker. The Scriptures record one example of undying fame in Enoch who

"walked with God" so closely and circumspectly that He "took," that is "translated" him to Heaven without undergoing the ordeal of death, like his fellowmen (Gen. v. 24); a miracle and evidence of infrequent Divine power, doubtless recorded for a threefold purpose; namely:—

1st. To shew that God will personally reward active Godliness and true piety.

2nd. To give the righteous, both of that day and all future time, a cheering pledge of the reality of the Soul's immortality and future glorification of the body (1 Cor. xv. 53).

3rd. To awaken the ungodly of that period to the realities of another world and a future state. The names and deeds of other prominent God-fearers are also recorded for our edification and education in Holy Writ. Thus Lamech, Enoch's grandson (Gen. v. 29), and Noah, son of Lamech, a just man, "perfect and upright in his generations," who "walked with God" (Gen. vi. 9) and "found grace in the eyes of the Lord" (Gen. vi. 8).

But evidently these were only prominent examples and isolated beacon-lights amid advancing spiritual, moral, social, and mental gloom. The mass of men was evidently undergoing slow but sure higher as well as lower or physical degeneration; and were both forgetting and disobeying their Maker. The mistake and misfortune of Adam and Eve and their source were being forgotten or ignored. Sin, so far from disappearing or lessening as a result of this monumental lesson, continued to spread and was evidently fast gaining the mastery of the race. Man's progress in spirituality, morality and religion was clearly downwards. The continued Biblical record of the period is that towards its close in the days of Noah, when about (Gen. vii. 6) 600 years of age, and only 1,656 years after the creation of Adam and Eve, the race was increasing fast in numbers, or in Scripture words "men began to multiply on the face of the Earth" (Gen. vi. 1).

That division of the race, the Sethitic, whose evolution, fortunes and history we must now follow as distinct from the Cainitic, increased rapidly, and in their earlier stages must have resembled a modern colony. Passing on to the era of Tubal-Cain, Methuselah and others noted for special Biblically chronicled accomplishments or peculiarities, we chiefly find that in these early days, the progeny was specially distinguished by healthy bodies, lengthy lives and vigour evidently much greater than now. This is shewn in various ways not expressly mentioned.

Thus, 1st, by their great longevity: *e.g.*:—

PATRIARCHAL AGES

Adam	died when	930	years of age.
Seth	„	912	„
Enos	„	905	„
Canaan	„	910	„
Mahalaleel	„	895	„
Jared	„	962	„
Enoch	„	365	„
Methuselah	„	969	„
Lamech	„	777	„
Noah	„	950	„

This viability and longevity were moreover doubtless due *first* to its being congenital and inherent; and *second*, to the aid of their two chief occupations, which were pastoral and agricultural, both eminently salubrious; especially superadded to the hygienic benefits of healthy abodes, simple habits and plain diet. But these are only special examples and it does not follow that the human beings of that day were invariably long lived. Even the quotations vary much. Many more may have and doubtless did die at much earlier ages. For then, as now, it is chiefly the years of the exceptionally long lives that men care to chronicle. These examples and their ages are specially noted as shewing that the stock from whom the patriarchs to come, the Israelites, their great men, and finally the Messiah Himself, were to spring. Reckoning the present average longevity at the high figure of 50 years, these patriachs lived from 8 to 19 times longer than we do. This should have afforded plenty of time for serious reflection at a period of life when thought is deepest and most apt to take a serious turn. In modern times and briefer ages it has been said we are just beginning to learn how to live when it is about time to die. This scarcely holds good for these pre-Noachian days, since they had ample time in which to accurately know and weigh the great objects of life and learn what are its safe and what its dangerous paths. But in this the great majority evidently failed. The lesson of Eden was not learnt. With the majority Satan was more popular than God, and a loose, evil life than a strict, Godly one.

Patriarchal strength and viability were shewn in still another manner, namely, by their virility. Thus:—

Seth	was begotten when	Adam	was	130	years old.
Enos	„	Seth	„	105	„
Canaan	„	Enos	„	90	„
Mahalaleel	„	Canaan	„	70	„
Jared	„	Mahalaleel		65	„
Enoch	„	Jared	„	162	„
Methuselah	„	Enoch	„	65	„
Lamech	„	Methuselah		137	„
Noah	„	Lamech	„	182	„
Shem, Ham and Japheth		Noah	„	500	„

These figures shew that the sexual life of this early epoch was very long if its inception was as now. Now we deem the virility of Abram at 99 and Sarah as phenomenal, as they themselves evidently did; and explicable only by Divine intervention as the Holy Bible chronicles (Gen. xviii.). Sarah "laughed" at the idea of having progeny at her age, for she had ceased to be "after the manner of women" (Gen. xviii. 12); and "pleasure" had ceased. In modern times the length of human virility has either diminished like the age; or is on the wane even at the youngest of the above ages. Although it must be noted that, comparing their ages with modern times, these fathers were very young when their sons were born.

Still another recorded Biblical fact shews the remarkable strength of those days. There "were giants in the Earth" (Gen. vi. 4). This gives acceptable indirect evidence. Commentators differ as to the true meaning and bearings of the word "giants." This is not the place to discuss the question. This sentence, however, was evidently written and dove-tailed into the text for a purpose; and that most probably as a corollary to the pointedly specified longevity and virility of the Patriarchs: its aim being to endorse the important fact of the greater physiological strength and pathological resistance of the entire human race of that day. In addition to this there were among the mass some that were of giant build and thus surpassed their fellows in bulk, stature and strength. Such, for example, were Anak and his family, and their descendants, the Anakim; and also the ancestors of the Philistines. Moses, or subsequent writers, who added the following, could not have spoken untruly by saying "the Emims dwelt therein in times past, a people great and many and tall as the Anakims, which also were accounted giants" (Deut. ii. 10). And again "that also was accounted a land of giants: giants dwelt therein in old time, and the Ammonites call them Zanzummims; a people great and many and tall as the Anakims" (Deut. xxvi. 20-21). The Anakim or sons of Anak (Ahiman, Sheshai and Talmai) were descended from Arba. This race seems to have been

numerous then, whereas later on, in David's time, only a few remained (Numb. xiii. 22). So also "For only Og of Bashan remained of the remnant of giants" (Deut. iii. 11). No doubt his bed or raised platform was ostentatiously long (Deut. iii. 11). Again we read "so Bashan was called the land of giants" (Deut. iii. 14). Again, "Rephaim was a particular race many of whom were of large stature." From these Bible texts we may legitimately infer that giant frames like these were, proportionately to the population, considerably more numerous at that day than now. Moreover, these giants, like the human race generally, had no doubt wills as strong and passions as fierce as they excelled in stature and physical strength, and often lawless brute force. But their gifts of vigour, alas, as we shall presently see, were misdirected and did not contribute to their welfare and success either for this world or the next. Giants have existed at all periods of human history. A giant fossil human skeleton has been dug up in North America. At the present day we have giants of several nationalities: as we also have dwarfs. But both extremes are regarded as lusus naturæ, and uncommon, often unwelcome. The former lack the strength and physiological stamina of the antediluvian giants mentioned in Genesis; who were evidently active, energetic, healthy men, capable of warfare, unlike those of the present day. The latter we do not care to perpetuate, because their progeny are generally inferior in strength and health and not of special utility in any ordinary mundane capacity. *Fourth*, healthiness was another proof of antediluvian strength and viability. What their actual and comparative freedom from or liability to disease was; and also the forms that this assumed we have no means of knowing: for the Holy Bible does not say or even hint at either. But as they were long lived and also more virile than now we may infer that they were also healthier; suffered less from disease, both as to duration and intensity; bore it better, and recovered more quickly. Possibly, accidents and surgical ailments were proportionately more common than medical ones; as violence, passion of all sorts, and evil lives were rampant and on the increase. Hunting men and artificers, two classes that have frequent accidents, are mentioned.

Occasionally in the Biblical word-panorama an exceptionally good life shewing evident religious tendencies brightens the picture of almost universal human depravity. For example, that of Eve (Gen. iv. 25); Abel (Gen. iv. 4); Enoch (Gen. v. 24). But as we trace the story of the Patriarchs through Seth, Enos, Canaan, Mahalaleel, Jared, Enoch, Methuselah, and Lamech; that is over a period of 1,650 years, down to Noah; we find that they had departed further and further from God, so that if they had not altogether or almost forgotten, they at least de-

spised and ignored God. Their spiritual, moral, social and mental depravity were great and increasing. Their physical degeneracy was likewise evidently progressive, as shewn by their decreasing longevity, virility, and doubtless increasing ratio of disease. For while Adam lived 930 years, Lamech, the eighth in descent, only lived 777 years; no very material decrease being yet apparent. Nor is it very distinct as to their diminishing virility and strength as noted in the preceding table of births. Nor can any direct evidence of an increase in disease be adduced, as the Bible is silent on the point, and conjectures are only inferential. But that body disease had increase in frequency, force and fatality seems highly probable; as generally happens pari passu with spiritual, moral, social and mental declension. In these most important respects their "thoughts were only evil and that continually" (Gen. vi. 5). There could be no more lamentable or gloomy picture; without a break in the cloud of universal decadence. That this prevalent irreligion and depravity were highly displeasing to God is shewn by a side light thrown on this period of primeval history. They were not only increasingly wicked and God-forgetting, probably idolatrous; but also immoral, lawless and tyranical. They forgot or despised God and looked upon His invaluable gifts of health, life, strength and longevity as if self-derived. God looked upon the Earth and found it, not as He wished; not as it ought and might have been; but "corrupt." He "saw that the wickedness of Man was great and that every imagination of the thoughts of his heart was only evil continually" (Gen. vi. 5-6). This religious decline was evidently almost universal. For "all flesh had corrupted his way upon the Earth" (Gen. vi. 11-12). Herein there is clear evidence of great and prevalent spiritual, moral, social and mental degeneracy. Nor do the Scriptures leave us without a clue to the nature and cause of this decline. The Lord said "my spirit shall not always strive (dwell) with Man for that he also is flesh" (Gen. vi. 3). Man, by his own supreme folly and sin had now become flesh; like the lower animals, sensual and a corrupt perishing creature. The decadence was partly due to increasing lust, and enervating, soul-destroying, disease-inducing, illicit intercourse. For "the sons of God" (Gen. vi. 2), that is the Sethites or worshippers of Jehovah (Gen. iv. 26), "saw the daughters of men" (Gen. vi. 2), that is either the common people and unbelievers or the descendants of the branded reprobate and banished Cain, "were fair," and they took them wives of all which they chose (Gen. vi. 2). Of this great mistake the Creator clearly could not approve (Gen. vi. 5-7). All history, ancient and modern alike, shews how much and how soon these interdependent evils, especially irreligion and lust contribute to shorten life, diminish physical,

physiological and mental strength and endurance, increase disease and shorten life; while the intermarriage of the Godly and ungodly is equally fertile of spiritual disease. Then, as now, the human mind was evidently neither reflecting nor retrospective. Even the troubles and disasters of our own personal lives are soon forgotten. Those of our immediate ancestors we often forget or ignore. Such as happened more than 2,000 years ago seem like a dream or myth. Adam, the chastened exile, could no longer recount his early experiences, preach, teach and warn his descendants and illustrate his lessons by the story of his own sad fate and egregious folly; for he had now been dead for 1,418 years.

This immorality and lust would surely have brought its own reward in ultimate spiritual, moral, social, mental and physical wreck of the race. But this prospect failed: for another special Heaven-devised punishment was sent for their persistent pursuit of ungodliness and its alluring but punitive ways. The long-suffering patience of Jehovah was becoming exhausted for now we read "the Lord said my spirit shall not always strive (dwell and reason) with Man" (Gen. vi. 3): and "God saw that the wickedness of Man was great in the Earth, and that every imagination of the thoughts of his heart was only evil continually. And it repented the Lord that He had made Man on the Earth, and it grieved Him at His heart" (Gen. vi. 6). And the Lord said I will destroy Man whom I have created from the face of the Earth, both Man and beast and the creeping thing and the fowls of the air; for it repenteth me that I have made them" (Gen. vi. 5-7). Matters betwixt the righteous God and rebel Man had at last reached a climax. Either God or Satan, good or evil, must prevail and have the mastery. Man could not follow and serve both. God will brook no divided sway; especially with an arch-rebel. Still, even in His great wrath, the Divine was merciful; gave Man time to preferably turn to Him; and specially warning to effect this desirable end. The preacher of righteousness was Noah (2 Pet. ii. 5): and the time for repentance 120 years. The latter, however, is a debated text, "yet his days shall be an hundred and twenty years" (Gen. vi. 3). This referred either to the time of grace and Noah's preaching while constructing the Ark. Or that the existence of human life was to be curtailed. If the latter, although this limit was at length to follow and even a shorter age, as in the Psalmist's time (Ps. xc. 10), the decree was evidently not to come into immediate force but was prospective; and did not actually happen till the days of Moses, 857 years later. For Noah lived 950 years; Shem 600; Arphaxad 438; and so on down to Terah, father of Abram, who lived 205 years; Abram 175;

Isaac 180; Jacob 130, when brought before Pharoah; Moses 120 years. This is an important point in human heredity.

Certain circumstances only add to the turpitude of this great, increasing, unwise, uncalled for and ungrateful human depravity; and that make men's conduct towards Jehovah and neglect of their own personal interests, seem wholly inexcusable: thus—

1st. The sad and no doubt familiar story of the Fall ought to have warned them. For Adam lived 930 years and must therefore have talked with and told Methuselah; and the latter lived 969 years and must have conversed with Noah.

2nd. They had some good examples to overshadow the bad. Cain had gone out from the presence of the Lord (Gen. iv. 16) or fancied he did by quitting that part of the Earth where Adam dwelt, God was locally worshipped and religious observances maintained, because these were distasteful to him. But his parents, Adam and Eve, were not reprobates now but doubtless repentant and God-fearing (Gen. iv. 1; iv. 25). When Enos was born to Seth "men began to call on the name of the Lord" (Gen. iv. 26), that is call themselves by the name of the Lord: there being a recrudescence of God-worship. Enoch's life, conduct and translation must have been lessons too forcible and impossible to ignore or despise. In those early days of lengthy lives Man was not so scattered; and all would doubtless be familiar with the main facts of such saintly lives. Last and by no means the least was the life of Noah 600 years before the Flood; a "just man and perfect" who "walked with God" (Gen. vi. 9); and so "found grace" (Gen. vi. 8) when the Earth generally was corrupt "and filled with violence" (Gen. ix. 12), a universal condition, as it included "all flesh." Noah's preaching and the building of the Ark ought to have led all but the utterly vile and irreclaimable to amend. For almost double a modern lifetime Noah was admonishing, remonstrating, entreating and preaching "righteousness" to his ungodly coevals, doubtless with all the fervour and zeal of an upright man bent on a momentous, Heaven-devised and beneficent but, alas, vain mission. The multitude were incurably sin-blind, spiritually deaf, and despised perhaps mocked his admonitions; lived on as before and only grew worse in wickedness.

Jehovah's efforts to bring back Man to obedience and love had failed. So with, for a time, exhausted patience He determined, in His just ire, to sweep the irreclaimable race from the

face of the Earth, and replace them by a new stock. As usual God tempered justice with mercy, and wrath with kindness; and so effected His purpose by the least painful of all modes of violent death, namely, by drowning. God's plans were not yet ripe for the delivery of a law identical with or similar to the Mosaic to stem the tide of vice and irreligion; though, humanly speaking, they had more and more need of such conservative and restorative laws. The third epoch of Bible history, like the second, thus ends disastrously. The period has begun auspiciously on the whole. For though Man had fallen into a state which God hates, that of sin, and now partook far more of the Earth than of the spirit-world, the Creator had made a new and judicious environment for him beyond the bounds of Eden, to permit voluntary self-elevation and self-cure. The period had seen Earth becoming slowly peopled with a physiologically splendid race of men, long lived, healthy, physically strong, of lofty intellect and high spiritual, moral and social capacities. But, alas, human weakness, folly, and sin prevailed over what was spiritualistic and Heaven-guiding. Till even the God of Mercy and Love could no longer suffer such iniquity. The family selected for the high honour of aiding Jehovah and repeopling Earth was that of Noah, his three sons and their wives; seven in all. The rest of the progeny of Adam, and mayhap also those of Cain, were engulphed by the "Flood" of water, which lasted days and "covered the whole Earth," that is the whole of its then inhabited part (Gen. vi. 17). Thus was the primitive, vigorous, long-lived race utterly extinguished. The Bible gives no hint that any others were saved but the seven now mentioned. But the physical and historic accuracy of the Bible story (Gen. vii. 7) is well attested and corroborated by the legendary records of every race under the sun, both savage and civilized; even by those furthest removed from Bible lands and wholly illiterate of sacred lore; except, strange to say, that of Egypt, one of the last in which we should expect to meet with an omission of this nature.

The 4th Era of Bible history extends from the Deluge (A.M. 3,154) to the Dispersion (A.M. 2,754) and thus includes 400 years. What was the effect of this late and monumental catastrophe on the survivors and their progeny? Was the punishment effectual in inducing the saved from following in the footsteps of their unwise antediluvian ancestors? Or did it fail in the desired result? About these the Holy Bible gives some very important information. The Deity intended the human race to make a new and double departure; the first ethnographic, by which Earth was to be re-peopled by the three sons of Noah and their offspring, in the hope of the second, that they would continue to follow after and increase in Godliness.

The Almighty, who had punished the incorrigible backsliders, did not forsake the true-hearted whom He had rescued either in spiritual or in more mundane matters. Neither did He leave them to their own devices, or to the machinations of God and Man's great, unscrupulous, cunning, powerful and ever-vigilant enemy, Satan, who had been so successful in defiling and degrading the souls and bodies of the entire race. Nor did He leave them wholly to the assaults of sin, now an inherent element in fallen human nature. For "God blessed Noah and his sons and *said unto them*: be fruitful and multiply and replenish the Earth" (Gen. ix. 1). Later on we are informed that from Shem, Ham and Japheth "was the whole Earth overspread" (Gen. ix. 19).

In the opening verses of Genesis ix. we have recorded one of those pleasing incidents that now and then occur in the otherwise mainly sad narrative of the early career of our race; and the result of which proved of high theologico-sanitary interest. This was not only creditable to Noah but gives a glimpse into some of the chief features of Jehovah's character, and illustrates His mercy, love, long-suffering and forgiving nature. Noah's first act on leaving the Ark, his temporary floating home, which by God's permission had saved the remnant of the human race, was a Godly and exemplary one, of worship and gratitude. "He builded an altar unto the Lord: and took of every "clean" beast, and of every "clean" fowl and offered burnt offerings on the altar" (Gen. viii. 20); thus acknowledging and thanking God for his own and his family's preservation. This offering was accepted by God, and bore momentous fruit. For "the Lord smelled a sweet savour and said in His heart, I will not again curse the ground for Man's sake, for the imagination of his heart is evil from his youth: neither will I again smite any more everything living as I have done. While the Earth remaineth, seed-time and harvest, and cold and heat and summer and winter, and day and night shall not cease" (Gen. viii. 4-22). Noah's act and worship pleased the Almighty; and He "blessed Noah and his sons and said unto them be fruitful and multiply and replenish the Earth." Since then there have been no great floods. Such deluges as have occurred have been local and and limited. So in course of time, by the posterity of Shem, Ham, and Japheth, was the whole Earth overspread and peopled in three distinct divisions, though at first they evidently remained together. Thus the allied sciences of ethnology and anthropology are both supplied from the Holy Bible with some of the great fundamental facts in their history; especially the original unity of the genus homo; and the subsequent great tripartite division of the future race. For in the days of Peleg, the fourth descendant of Shem (Arphaxad Salah Eber Peleg)

"the Earth was divided" (Gen. x. 25); and the human family, now far more numerous, spread over Western Asia, Eastern Europe, and North-east Africa, and separated into distinct tribes and nations; this being the precise language in which this fact is recorded, "these are the families of the sons of Noah after their generations, in their nations; and by these were the nations divided in the Earth after the flood" (Gen. x. 32). This clearly points out from whom sprung the dominant races by which the world was subsequently peopled: and proves that these were not the descendants of the self-exiled Cain, but those of his younger brother Seth.

Noah and his family doubtless continued to worship God. But even among them there was a decided retrogression. The conduct of Noah himself, of his son Ham and grandson Canaan, became in time by no means exemplary (Gen. ix. 20-24). Shem's family probably had special religious distinction as the ancestor of the future Messiah. As Noah lived 350 years after the Flood and Shem 502 years after that event, both thus lived well on towards and even after the next great epoch-making catastrophe, the Dispersion; and ought to have and no doubt did preach to and warn and set the best and Godliest example they could to the new post-diluvial race of beings: but apparently in vain. For Man's innate wickedness was great and thus far unchecked. But this indifferent record soon changes for the worse. We find a very different story about "Nimrod," grandson of Ham; a narrative evidently given purposely to mark the renewed depravity and downward moral and spiritual tendency of the human race generally. Nimrod, one of the great and powerful men of that day was the first to found and rule a kingdom, that of Babylon. This first of monarchs was a "mighty one in the Earth" and a "mighty hunter"; a man of great social, political, and mighty weight in the world; who from the chase went on to war, and deteriorated as he aged, so that at last his celebrity in these violent pursuits and in deeds of rapine and blood soon became noted and proverbial, even in the days of Moses. His character is quoted to shew how the general tendency of the race was pointing; and that, as a whole, they manifested great spiritual, moral, social, mental depravity, and no doubt corresponding biological degeneracy. The whole world of that day spake one language (Gen. xi. 1): and were more or less massed together, evidently had a community of interests and pursuits, and were nomadic. As they journeyed eastward, from Persia probably, they settled in the Plain of Shinar or Babylonia, where they built a city and a tower (Babel), evidently meant to be centres of union and power, and practical rebellion against God. They thought then, as we do now, that union is strength: and by this device tried not only to make

themselves a name but also to prevent their dispersion abroad (Gen. xi. 4-5-7). Their designs were made not only without reference to but without the advisable permission of Jehovah: who, thus ignored, was manifestly displeased both with their doings and motives: for He came down to see them, their city and tower; and determined to circumvent a project, the success of which the founders, probably Cushites, or descendants of Ham, under Nimrod's sway, would have established an universal despotism, suppressed the worship of God and fostered every crime.

At that day they had evidently advanced in worldly knowledge and intellectual activity, and certainly in enterprise and ambition; but they had declined in religion, a feeling and instinct which all, more or less, must have known. The sad and momentous story of the Fall, over 1,250 years before; and the more recent and awful catastrophe of the Flood, which happened only a little over 400 years previously, had both failed to teach or intimidate them of the folly of irreligion, immorality and sin. These punitive sequels of sin were evidently forgotten, minimized and deemed merely unimportant traditions or events never again likely to recur. Thus once more human history shewed great and increasing depravity and deterioration of the human soul, mind, morals, social life and doubtless of the body also. The species were increasing rapidly. Cursory Bible readers are apt to imagine that the comparatively few names mentioned in this part of Genesis form almost the whole of the world's inhabitants of that day, of which a little consideration will shew the fallacy. The Bible mainly chronicles those by whom the Messianic and Jewish successors were to be carried on. But the numbers to which the human race had already grown according to natural law must have been startling, although we cannot now compute it. But yet the Holy Bible tells us much regarding a far more important subject, that of Man's higher nature. Their progress in spirituality and morality since the Flood had again been distinctly and markedly downwards: their growth in sin again rapid and great. Socially they were no doubt becoming equally demoralized and vile. And their physical and physiological deterioration is shewn in several ways: thus—

1st. By their decreasing longevity. Thus while the highest ante-diluvial age, that of Methuselah, was 969 years, those of the post-diluvians were:—

Shem	- -	600 years.
Arphaxad	- -	438 „
Salah	- -	433 „
Eber	- -	464 „
Peleg	- -	239 „

Reu	- -	239	years.
Serug	- -	230	„
Nahor	- -	148	„
Terah	- -	205	„

These figures mark ages only from half to one-third of those of the antediluvians; indicative of waning strength, vitality, and no doubt virility.

2nd. The age at which their eldest was born was also considerably earlier. Some may deem this proof of increased vitality and virility. But others, and with more reason, that it only shews, if not earlier precocity at least quicker attainment of full, manly capability and earlier decay in accord with a former law. Thus:—

Shem	begat	Arphaxad	when 100	years old.
Arphaxad	„	Salah	„ 35	„
Salah	„	Eber	„ 30	„
Eber	„	Peleg	„ 34	„
Peleg	„	Reu	„ 30	„
Serug	„	Nahor	„ 30	„
Nahor	„	Terah	„ 29	„
Terah	„	Abram	„ 70	„

This indicates a marked difference from the figures of the pre-diluvian epoch, which gives from 65 to 500 years as the age of the father at the eldest son's birth.

Secular and medico-secular history say nothing, while the Holy Bible is equally silent regarding the prevalence of disease during this period; how much there was, its nature, and mortality. But we may infer that it was fast increasing both in frequency and fatality. For then, even as at the present day, morbidity and mortality of body; and sin, that is disease of the higher nature, from neglect of God's theologico-hygienic laws, as distinct but undoubted result of sin, go hand in hand in accord with the unerring laws of nature. All perversions of God's laws, whether moral, spiritual, social, mental or medico sanitary, were as certain then as they are sure now to be followed by a corresponding increase in the current amount of disease and death.

Thus, once more, human affairs and evolution had reached a climax. The race generally was evidently just as evil now as before the Flood. For God "saw that the wickedness of Man was great on the Earth, and that every imagination of the thoughts of his heart was only evil continually" (Gen. vi. 5-6). Clearly He had either to try to rescue Man or leave him to go to ruin, spiritual, moral, mental, social and corporeal. They must either become His children or servants and slaves of Satan. He could no longer tolerate defiance, ingratitude, rebellion and sin. The Almighty had either to permit this to go on, and Man to end at last in utter destruction and ruin of soul and body. Or

He had to try to save him. Fortunately for Man, the God of love, long-suffering and mercy determined on the latter. And therefore set about it in His own way, at His own time, and with His own agents. The time was not yet ripe for the revelation of the great sanitary code of Mosaic times. The Almighty's displeasure was necessarily just and great. But His kindness was equal to the occasion. In mercy and love He had long before promised not to repeat the punitive Flood (Gen. ix. 11). Still He could not let sin go on unchecked. So, while He determined to punish He would also try to reclaim Mankind. "And the Lord said behold the people is one, and they have all one language; and this they begin to do; and now nothing will be restrained from them which they have imagined to do. Go to, let us go down and there confound their language that they may not understand one another's speech. So the Lord scattered them abroad from thence upon the face of all the Earth; and they left off to build the city and tower" (Gen. xi. 8). Thereby a multiplicity of languages superseded the primitive tongue. This again led to their dispersion; those of each tongue doubtless, for social reasons, going different ways (Gen. xi. 9). A continuance of one speech would have bound the race together; whereas the diversity would scatter them more widely over the adjacent regions of Asia, Europe, and Africa, than any event that had yet occurred. The unfinished tower was named Babel (confusion). The city afterwards became the well-known Babylon. Thus did God again vindicate His supremacy and authority. For had the full accomplishment of this racial project been permitted the founders of this monumental city and tower would doubtless have followed this initiatory act of rebellion and independence by establishing a universal despotism, suppressing the worship of God, and fostering crime in every shape, spiritual and bodily. The Bible narrative is the only book which satisfactorily explains the existing variety of human languages, now reckoned at from 4,064 to 5,000 in number, including dialects; and to trace these back to one—the primitive Adamic. Modern philological research infers that the division of the primitive tongue into so many different kinds was induced, not by a gradual process that would have taken ages, but suddenly and violently; after the Biblical mode explained years ago. Secular cannot refute the far more ancient Bible science. That the scriptural story of the confusion of tongues and the dispersion of tribes is not fable but fact, is proved by its existing traditionally in the early history of every nation and people, savage and civilized, under the sun. By this the Shemites spread over Asia, the Hamites over Arabia and Africa, and the Japhetites over Asia and Europe, by Divine direction.

Thus for the third time, and several centuries after the Flood,

was the human race punished *en masse* for their grievous sin; but in a new and milder manner; and by the last of the general racial punitive catastrophes. In the first or Edenic, and in the second, that of the Flood, judgment was tempered with mercy, the former being paramount. But now mercy was tempered with judgment; the former eclipsing the latter. The new plan was less punitive and more one of conciliation. Man was now to be ruled more by love than inoperative fear. Dispersion and confusion of tongues would not destroy sin or lessen individual folly; but it would impair combination and prevent or diminish the guilty conduct of united multitudes. But it was yet neither God's time nor opportunity to divulge His monumental health code for Man's every entity.

5th Era of human development. This extends from the Dispersion to the Exodus: that is from B.C. 2754 to B.C. 1648; thus covering a period of over 1,100 years. During this the Bible story that narrates the Divine plans develop and give far more interesting and copious details. The special promise after the Fall (Gen. iii. 15); then, later on, to the line of Shem (Gen. ix. 26) is now limited to one branch of that family, Abram and his progeny, who are henceforth almost the only subjects of the sacred history. The mutual relation that does and that which ought to exist between God, the spirit-creator, and Man, the created soul, is the ceaseless thread that runs through the entire Bible story. It is evident so far that God's name was not altogether forgotten on Earth. The decline from spiritual rectitude was not utter or universal. The desired fear, love and worship of God can be traced incidentally and inferentially through Shem and his descendants down to the ninth generation, namely, Abram. God's name, honour and service, however, were evidently in peril of being altogether forgotten by the increasing influx and growth of sin in human souls; according to the laws of heredity and those of the rapid spread of this many-headed disease among mankind. The few truly God-fearing men or families would be despised, ignored, perhaps persecuted, and their attitude and influence of little avail to stay the onward and downward current of impiety. God's love and rightful sway over human affairs was ignored; and His power defied. Once more was Man lapsing into Atheism or idolatry: and fast ceasing from the fulfilment of the chief end for which he was created, "the glory of God and his enjoyment for ever." Though practically nothing is said on the subject, the sequel shews that as a rule the masses were slowly but surely drifting back into spiritual infidelity, rebellion and irreligion. Fortunately God, in His mercy and love did not permit this spiritual, moral, social, and mental ruin to be complete, but in pursuance of His original

intention and promise, first to Adam (Gen. iii. 14) and again to Noah (Gen. vi. 18), God in His love and long-suffering mercy had to still further develop His plan to perpetuate His name, and assert His authority. First, the terrible and exemplary punishment of Adam and Eve for their sin of disobedience, consisting in their spiritual, moral, social, physiological and physical degradation, expulsion from Eden, and all the evils and discomforts which these entailed on their posterity, had unfortunately failed to prevent a downward course in sin among their descendants, the human race. So likewise the subsequent appalling calamity and punishment of the majority of the race by the Deluge had no better corrective effect on the descendants of the selected remainder. So, too, the chastening and warning influence of the dispersion was apparently ineffective to deter from sin and God-forgetfulness. It was evident that as a race Man was again falling deeper and deeper into infidelity and its results. And, but for God's clemency, it is appalling to think what might have been the ultimate end of the defection, had God's love for His human offspring not prevailed over His anger for their sin and ingratitude. Bible history is full of proofs that Jehovah abundantly practises the forgiving spirit He so strongly inculcates (Mat. xviii. 22). Having promised, Jehovah could not again justly destroy the errant race; though they doubtless richly deserved it. He accordingly resolved to try a new development and take other milder measures, meant to oppose and circumvent prevalent human wickedness; as a prelude to winning them back to obedience by a systematic course of education, spiritual, social, moral, mental and physical. This plan in its entirety was well calculated to teach mankind that it is not only individually but collectively wiser and better in every way, for time and for eternity, here and hereafter, for this world's interests and those of the next life, to endeavour to avoid soul, social, moral and mental, sin and death, as well as bodily disease and death. And to instil that it is often possible to do both by a wise course of life conduct: nay, more, to shew that to follow this line is not only easier but also better than the reverse, that is by negligence to fall into both, and thus have both to combat and remedy. In brief He intended to shew that *prevention* of soul, moral, social and mental, sin and of corporeal disease are better far than their *cure*. And not only to indicate this clearly, but also to give them the means for effectively accomplishing both purposes by a series of systematic health codes, not for the body only, but every other of the human entities. Spiritual, moral, social and mental laws for the former, and sanitary laws for the latter: these theologic and hygienic laws being combined in one great code. As a beginning God therefore initiated the first stage of this new instruction meant to culminate

in the revelation from Heaven of a series of law-codes for Man's guidance, and for the institution of a sacrificial mode of worship at Sinai. This, again, was merely a prelude to and forerunner of their subsequent, more advanced and spiritualized education and salvation on a higher plane, to be inaugurated by the Messiah on the basis of one Divine sacrifice for all, 1,900 years later on, at Calvary: where God's own well-beloved and only son and our Saviour, was to come in human form and by His sacrifice and death human guilt was to be atoned for and cancelled. This plan consisted of several definite and distinct stages.

The first step in this direction, no less beneficent than elaborate, consisted in selecting from the world's population some God-fearing individual, doubtless the most Godly, perfect and suitable man of his day from a biological as well as a spiritual point of view, to be a fitting progenitor from whose loins He might develop a family, then a race and nation, "numerous as the stars" (Gen. xv. 5), who might serve Him, be His special care, the recipient of His favours, custodian of His name, worship and literary legacy and educational guide-book, the Holy Bible: ultimately give them their own and the racial Saviour, and transmit His name and worship to future generations. The ancestor selected for this high honour was Abram, subsequently changed to Abraham of Chaldaic, that is Syrian (Shemitic) extraction (Deut. xxvi. 5); doubtless once an idolater, partially or wholly, but now right at heart and by Divine grace so transformed spiritually as to ultimately merit the title of the "friend of God" (Jas. ii. 23). In Abram and his immediate descendants the Jews subsequent Bible history mainly centres: other personages and peoples being practically put aside for the story of those thus ordained for the lofty privilege of preserving and propagating God's name and service on Earth. Our rôle is now to follow the interesting and instructive tale of the life and education of these patriarchs and their progeny. Of this it will merely be necessary to give brief outlines of the incidents in the secular and religious lives of Abram, his son Isaac, his son Jacob, the three from whom, in succession, the Hebrews had their descent; and to study only such points as bear directly or indirectly on the central subject, viz., the spiritual, moral, social, mental, and medical history of their times. The incidents in the lives of these Patriarchs, good, bad and indifferent, are chronicled with scrupulous accuracy, to shew that even what we deem the best of men and women are but human, and all have their failings; matters of interest and import in a record of God's ways and dealings with humankind.

The ordinary discipline of life which all have to undergo and the main aim and outcome of which should teach us that this

Earth is not our permanent home, thus weaning us from it and leading us to long for a better, seemed to be emphasized in the record of these lives. These three Patriarchs in succession, and after them their Jewish progeny, had special spiritual, moral, social and secular training to fit each for his individual part in the great mission for mankind's restoration to Heavenly favour, holiness and happiness.

The life history of Abraham, his son Isaac and grandson Jacob, and their education for God's special work and the development of His special people, the Hebrews, is very interesting, romantic, and often dramatic. Much of that of Abram, Father of the Hebrews, is given in minute detail as a popular educational lesson, and fills no less than twelve of the fifty chapters of Genesis, that is nearly one-fourth of the whole book. Abram's high and distinctive mission was threefold:—*first*, to be developed and quoted as a special pattern of faith (Heb. ix. 17); *second*, to become the ancestor of God's special people, the Jews; *third*, to become the progenitor of the Saviour of Mankind. The first stage in his education for this, was inaugurated by his first *call*, when the glory of God or Shekinah (Acts vii. 2) appeared unto him in Ur of the Chaldees in Mesopotamia, the land of his nativity; and said unto him "get thee out of thy country and from thy kindred and come unto the land which I shall shew thee" (Gen. xii. 1). For this, God gave him both a reason and a promise, "I will make nations and kings of thee" (Gen. xvii. 6). This was to be the ultimate outcome of his exodus and a preliminary climax of the Divine programme. In accordance with this his father, Terah, "took Abram, his wife Sarai, and Abram's nephew Lot, and removed unto Haran or Charran" (Acts vii. 4), where they settled and Terah died. But God designed that Abram should proceed further, and thereby become completely separated from his near relatives. He therefore gave him a *second* call and said "get thee out of thy country and from thy kindred and from thy father's house into a land that I will shew thee; and I will make of thee a great nation; and I will bless them that bless thee; and curse them that curse thee; and in thee shall all families of the Earth be blessed (Gen. xii. 1-3). This distinctly limits the special blessing which had been originally pronounced in Adam and Eve's time (Gen. iii. 15); and then carried on to the line of Shem (Gen. ix. 26) and one branch of that family. Henceforward Abram and his descendants form almost the only subjects of Bible history. And a critical survey of that history will shew that the blessing here spoken of, which the Jews were the means of bequeathing, was no less than these three:—

1st. The Pentateuch and its incomparable hygienic laws for life on Earth.

2nd. The Holy Bible, containing Man's racial history; and an enlarged guide for wise conduct.

3rd. The Saviour of Mankind, and all the benefits that have followed His advent and life below.

Abraham, then 75 years old, therefore departed from his kinsfolk with Sarai, and all their substance and the souls begotten in Haran; and came to Sichem in Canaan (Sechem or Sychar, now Nabulus), lying between Mount Gerizim and Mount Ebal. Here "the Lord appeared unto Abraham and said, unto thy seed will I give this land" (Gen. xii. 7). Abram then built an altar unto the Lord in token of his gratitude, faith in God's promise, and as a pledge of the maintenance of the worship of Jehovah in his family. The Bible story goes on to tell how well God cared for him and his family in every way, spiritually and physically, in soul and body, for his life, health, comfort and happiness when they continued to love, worship and obey Him, and the reverse of all these when they forgat Him: as the outer nations were doing. Abram and his family made no permanent settlement then in Canaan (Heb. xi. 8-10). A doubtless providential famine drove them into Egypt; a country which has always been the granary of other nations, and has played a most important part both in early and in later Bible history. As with most other Bible characters, Abram's mistakes, social and otherwise, are duly, intentionally and faithfully chronicled with that minute accuracy and impartiality that characterises the Bible above every other book. Alas for human frailty and imperfection and sin's allurements, Jehovah had difficulty in leading and guiding aright not only the human race generally but even those selected for His special benefit and God-like purposes. Abram made his first mistake regarding Pharoah and Sarai (Gen. xii. 18). Abram returned to Bethel in South Canaan (Gen. xiii. 4); then on to the Plain of Mamre (Hebron) (Gen. xiii. 18). The wickedness of Sodom, Gomorrah and other cities and their destruction by Jehovah intervened; given to shew how utterly depraved the general race had become. Abram after this journeyed towards the south country, dwelt between Kadesh and Shur, and sojourned in Gerar (Gen. xx. 1). There he committed his second mistake, by equivocating with Abimelech, king of Gerar, regarding Sarai, as he had before done with Pharoah in Egypt (Gen. xx. 2-18). Later on he dwelt in Beersheba (Gen. xxi. 33). Afterwards he sojourned in the land of the Philistines (Gen. xxi. 34). Though interesting, it would be inappropriate here to follow the minute details given of many of the striking incidents that befel Abraham during his career: many of them miraculous (Gen. xv. 12-17; xxv. 24; xx. 17) and important as indications that God, spiritually and otherwise,

led and educated him throughout, and personally supervised the work he was called upon to do. Among the most important are the story of Hagar (Gen. xvi. 17-18); then that of Ishmael (Gen. xxi. 14-21); and Isaac (Gen. xxi. 22); the early lives of these (Gen. xvii. 25; xxi. 7); Abram's memorable intercession with God for the sinful and doomed cities of the plain (Gen. xviii. 23-33); God's trial of Abram's faith in ordering him to sacrifice Isaac (Gen. xviii. 18-33); and the story of Lot and his wife (Gen. xix. 1-29): are all familiar to Bible students. We have no record of Abram's early life; or the date, manner and means of his inauguration into God's service; or of knowing if he was the first of his tribe or family who served God; or if he derived his knowledge from his parents. But all through his life subsequent to his call the text gives perfect evidence that the spiritual hygiene and atmosphere to which Abram was subjected was, on the whole, satisfactory; that his soul prospered and that he pleased God; his spiritual education, God-directed, being progressive. We find this in the frequency with which Jehovah communicated with him in various ways, held the closest intimacy, and shewed the most perfect trust, at different parts of his career. Thus:—

1st. By the Shekinah or glory of God appearing to bid him begin his ordained career by leaving his native land (Gen. xi. 31).

2nd. By the Lord appearing to give his *second* call (Gen. xi. 31).

3rd. By the Lord speaking with and encouraging him by repeating His promises after Lot had separated from him (Gen. xiii. 14).

4th. By the word of the Lord coming in a vision or dream promising to shield him and be his great reward (Gen. xv. 1).

5th. By the Lord speaking to him in a deep sleep or trance, in which he evidently passed the whole day, and had the fate and bondage of his progeny foretold (Gen. xv. 12).

6th. By the Lord appearing to him, promising a son and heir for the direct succession (Gen. xvii. 1).

7th. By the Lord appearing in human form to renew that promise (Gen. xviii. 1).

8th. By God or His Angels speaking to him to tempt, prove his faith and obedience regarding Isaac's sacrifice (Gen. xxii. 11).

On the other hand the narrative shews that all through his career, from the first call onwards, notwithstanding his mistakes in Egypt and Gerar, Abraham never swerved completely from God's service; but loved and gave Jehovah a voluntary and

hearty obedience, and was surely progressing in grace and spirituality as he advanced in years: the whole of the latter half of his life being thus a course of soul education for God's own beneficent and far-reaching purposes, in accordance with and as a link in the chain of His plan of salvation. The Bible biography of Abram often proves this. Thus it is evident as his life goes on:—

1st. By the ready faith and obedience on his first call (Acts vii. 3).

2nd. Another proof of this when told to leave his kin (Gen. xii. 6).

3rd. By his building an altar to God at Moriah (Gen. xii. 7).

4th. By his building another altar at Bethel and calling on the name of the Lord (Gen. xii. 9).

5th. By his calling on the name of the Lord at this altar in Bethel on his return from Egypt (Gen. xiii. 4).

6th. By his building an altar unto the Lord on removing to Hebron in Mamre (Gen. xiii. 8).

7th. By the word of the Lord coming to him subsequently in a vision at Beersheba (Gen. xv. 1).

8th. By his sacrificing at God's command certain varieties of animals, those long afterwards appointed to be offered in the Levitical sacrifices. This, like subsequent sacrifices, was required in making a covenant to keep him in mind of the prospective great propitiation of a yet far off day.

9th. By God putting him in a trance and giving him a vision into futurity (Gen. xv. 13-15).

10th. By God's making a covenant with him (Gen. xv. 18).

11th. By God appearing and talking with him (Gen. xvii. 1-3).

12th. By God appearing to him in human form at Mamre (Gen. xviii. 1).

13th. By God "remembering" him by saving his nephew Lot from the fate of the Cities of the Plain (Gen. xix. 1-30).

14th. By his successful prayer to God for Abimelech and his family (Gen. xx. 17).

15th. By his planting a grove or tree in Beersheba and calling on the name of the Everlasting God (Gen. xxi. 33-4).

16th. By God shewing an interest in him by tempting, trying his faith and obedience regarding his parental love for Isaac (Gen. xxii. 1).

17th. By his intention to literally and strictly obey God by sacrificing Isaac (Gen. xxii. 10).

18th. By God's chronicling the fact that he "feared God"

(Gen. xxi. 33). The Heart-searcher knew that he "obeyed His voice" (Gen. xxii. 18); and said that all the blessings which followed Abram's own life, and those to follow after and through him, were due solely to these.

Under these circumstances, with God's special blessing, help, and his own judicious conduct, it is not surprising to find that Abraham's worldly career as a whole was upright; his prosperity early, and success great. His walk before God was as "perfect" and sincere as his Maker had specially enjoined him to make it (Gen. xvii. 1). Even in Abraham's lifetime God fulfilled His promise "I will bless thee and make thy name great" (Chap. xxiv. 1). His life was mainly spent as a shepherd, sheik, chief, or prince. And as such, even soon after he left Egypt, he became "very rich in cattle, silver and gold" (Gen. xiii. 2); and was evidently one of the great men of his day and region. He retained his religion and the worship of Jehovah all through life. Prosperity did not spoil or lead him to forget the God to whom he owed everything, as it no doubt did so many. Worldly success, and a large share of human happiness were among the rewards of his faithfulness.

But he had others and better. For example, remarkable health and vitality. The medical history of Abraham and that of his period shew points of great interest. At this early stage of the world's history God's methods of dealing with Mankind were very different from now. Thus in Eden He held personal walking and talking intercourse (Gen. ii. 16). Subsequently he spoke to or appeared in angel form as to Abram (Gen. xviii. 2); or in dreams as to Abraham (Gen. xv. 12); or in visions as to Jacob (Gen. xxviii. 12); or by the Shekinah as to Moses (Ex. xl. 34). God likewise helped them in various ways; and shewed His great interest in human affairs, public as with the Flood and Dispersion, and private as with Abel, Enoch, and others. Some He made to prosper, others the reverse, as they walked aright as with Abraham, or not as with Ham and Canaan. It was so, too, in early health matters. To aid this He gave them the best of environments and occupations, gardening, agriculture, grazing. In this Abraham largely shared. In most matters, and in all of vital importance, Abraham walked wisely and as the Almighty had cautioned him (Gen. xvii. 1); by following after God, striving to do His will, and being ever willing to be led and guided by Supreme wisdom, fully valued tutelage and advice. The result was great spiritual, moral and social prosperity. His physical and worldly success was equally marked. His physiological condition, high salubrity, happiness and longevity all gave equal evidence of this.

Isaac formed the next link in the chain of agents whom God

raised up during this era to carry out his projected plan. His life forms a worthy sequel to that of such parents. But its chief, simple and touching, and often homely incidents, so dear to Bible readers, can be reviewed here only briefly, because more is unnecessary for our present enquiry. As the only legitimate son, Isaac, inherited all that Abraham left (Gen. xxv. 5); including the promises (Gen. xxvi. 3). His rôle was to continue his father's; first to develop a race for Jehovah's purposes; and second to preserve, propagate and transmit the name, worship and authority of Jehovah. By God's grace, the wise training and teaching he received, while yet a lad (Gen. xxii. 7-10), he proved both his piety and perfect faith in God, by complete submission to his projected sacrifice on Moriah. The same potent agencies and the quiet, contemplative, unambitious, pastoral life he led, sufficed to keep him spiritually, socially, morally and mentally pure; to make him grow in grace and thereby in God's favour. After Abraham's death "God blessed his son Isaac" (Gen. xxv. 11). He was now head of the chosen family, still small and unimportant, but yet heir of the great promise. Like Abraham's life that of Isaac is full of romance and incident. The story of Rebekah; that of the rival twins, Esau and Jacob, and the mess of pottage; Isaac's equivocation regarding his wife to the Philistine King Abimelech, so like those of Abraham regarding Sarah (Gen. xxvi. 6-10); his trouble with Esau and Jacob, who hated one another; Jacob's cunning and falsehood in supplanting his brother in Isaac's blessing, and his subsequent flight; are all familiar. Doubtless, as often happens, his troubles helped and were sent to chasten, increase his faith in and love for the God who had thus watched over, led and blessed him, spiritually, morally and socially. We have evidence of this in his prophecies regarding his sons (Gen. xxvii. 23-29). At last he, too, died. His life and career were less important than those of Abraham and his Bible biography therefore shorter. The population of the world must then have been rapidly increasing, especially Europe, Asia and Africa; and its surface fast becoming covered by the human race; consisting chiefly of idolaters. Surrounding nations and tribes were doubtless lapsing still farther and farther into open sin and unrestrained infidelity to God; with perhaps very rare exceptions, such as those we have now been considering. Jehovah's plan for Man's salvation was more than ever necessary, even as the spiritual, moral, social and physical condition of humanity were still rapidly on the wane.

Jacob, younger son of Isaac, now became head and developer of the future Hebrew family. The sublime story of God's scheme for human emancipation from sin therefore follows the life of this patriarch. Like the rôles of Abraham and Isaac, so Jacob's was also twofold, *first*, to propagate the chosen race;

and, *second*, to perpetuate God's name and service on Earth. His biography is given at greater length than that of his father Isaac, or even that of Abraham; because more stirring and eventful as the Divine programme became unrolled, though marked by greater worldliness than those of Isaac or Abraham; some of its incidents being indeed by no means creditable to him (Gen. xxvii. 19; xxv. 29-34). His exile and romantic marriages with Leah and Rachel; the birth of his twelve sons destined to carry on the succession and be progenitors of the twelve tribes of Israel, in whom the history of God's plan of salvation was now to centre, are all familiar. The entire family history and biography are full of remarkable incident and interest; and furnish abundant proof of the hand of God in effecting his beneficent purposes in ways which are singular, means that are often exceedingly simple, and personages often the most unlikely. First we read of the jealousy of his brethren against Jacob's youngest and favourite son, Joseph; which led to his providential double sale (Gen. xxxvii. 28; Gen. xxxvii. 36) as an Egyptian slave. Then of the strange events that followed, such as his temptation (Gen. xxxix. 13); imprisonment (Gen. xxxix. 20); unexpected elevation to the Viceroyalty (Gen. xli. 42); and of the strange events which led to the emigration of Jacob, his sons and their families, seventy in all, at Joseph's invitation, to Egypt (Gen. xlvi. 27); and lastly of their settlement as shepherds in Goshen, the most fertile part of Egypt, where God meant to increase and elaborate them into the Hebrew nation of the future. Jacob's life was such as to chasten his spirit and lead him to repent of his earlier follies. God blessed him and even led him to testify to his continued Heavenly allegiance before the polytheistic idolater Pharoah (Gen. xlvii. 9). At last he died peacefully in Egypt "full of days." Egypt, their new abode, originally settled by Mizraim, was surrounded by smaller and less powerful nations, who, like it, were no doubt receding further from the knowledge and worship of the only true God, and fast becoming idolatrous. There may have been a few marked exceptions, such as Job, chronicled in Bible story. But, for the most part, save for the safe custody of God's name in the line of Abraham, the Divine worship would have perhaps been completely extinguished on Earth, leaving the entire world to the triumphant reign of Satan and his chief attribute, sin. Still less, therefore, at the close of Jacob's career than at the end of Isaac's life, could God forego His great plan for Man's restoration and salvation from idolatry and Atheism. This plan was more necessary than ever: for, as the world's population was increasing rapidly, the growth was mainly in unbelievers and aliens from God.

Both the numerical increase and the educational training of

the tribal founders of this prospective nation were thus transferred by Divine guidance from Abram's native place to a foreign land; where, in 400 years, from 70 souls (Gen. xlvi. 27) they totalled over two millions (Ex. xxxviii. 26). Their sojourn in Egypt was fulfilled under the most romantic circumstances and such as to indicate Divine supervision. For what purposes had God led this family of God-serving shepherds into an idolatrous country? This was to further God's great plan; and their rôle a continuation of Jacob's; *first*, to develop the Hebrew nation; *second*, to preserve and propagate God's name and worship; and *third*, to receive and transmit to posterity God's laws from Heaven for life on Earth. For this their education was both lengthy and unpleasant. The story embraces two sub-periods, that of *prosperity* up to the death of Joseph; and that of adversity, lasting from thence on to the Exodus. To mould the Hebrews for His purpose He at first made them welcome settlers; and then reversed this by making them abject slaves to their former Egyptian friends.

The auspices were at first favourable: for—

1st. The Governor of Egypt was their brother, and friendly.
2nd. His master, Pharoah, who had specially invited them, was likewise friendly, as were the Egyptians generally.
3rd. Both the Hebrews and these shepherd kings of Egypt and their people were originally of Syrian origin.
4th. The latter originally followed the same shepherd occupation as the Hebrews.
5th. As shepherds the Hebrews had greater affinity with these Hyksos or shepherd-king-people of Lower Egypt, than with their foes, the real Egyptians, now located in Upper Egypt.
6th. Goshen was very fertile; and the best pastoral region in Egypt.
7th. It was also very healthy.
8th. Above all, they were hereditarily healthy; and blessed of God for a special end.

Thus the Hebrews were comfortably settled, prosperous and happy. Nor is it surprising that under the circumstances they "grew and multiplied exceedingly" during the following 17 years, that is till Jacob died. The Bible narrative then takes a great stride and passes on to the period when "Joseph died and all his brethren and all that generation" (Ex. i. 6-7). None of the original emigrants now remained. But thus far they were evidently not only prosperous but decidedly God-blessed; for, as Jehovah had ordained, they were fruitful, increased abundantly, multiplied, waxed exceeding mighty, *and the land was filled with them* (Ex. i. 7).

The second sub-period, which lasted till the Exodus, and is

thus a longer period; inaugurates a new and sad phase in the social and national life of the Hebrews. For there arose an enemy in the form of "a new king over Egypt who knew not Joseph" (Ex. i. 8). The true Egyptians, who had retired to Thebes and Upper Egypt, had risen, reasserted their supremacy, and banished the shepherd kings while they oppressed their Israelitish allies. The new dynasty not only hated the Hebrews, so friendly to their former conquerors, but were both jealous and afraid of them. Joseph was dead, his story now old and lacked its original force and moral. And, even if remembered, it was not their nation he had benefited but that of the shepherd kings; for which no gratitude seemed due. The new monarch "said unto his people, the Children of Israel are more and mightier than we: come on let us deal wisely with them lest they multiply, and it come to pass that, when there falleth out any war, they join also unto our enemies and fight against us, and so get them up out of the land" (Ex. i. 9-11). With this object they enslaved and set taskmasters over them to afflict them with their "burdens"; made them "serve with rigour" so that their lives were bitter with hard bondage, working in mortar, brick and all manner of field service in building the treasure cities Pithom and Raamses, constructing pyramids, dykes, digging canals, and mining. Pharoah's wrath, cunning and cruelty carried him so far as to order the midwives to kill all new-born Hebrew males. How far this was carried out and how far evaded it would be difficult to guess; as the Bible gives no definite clue. But the midwives disobeyed, "therefore God dealt well with them" (Gen. i. 21-22) because they "feared him." Notwithstanding this hostility, rigour, mental and physical depression, "the people multiplied and waxed very mighty" (Ex. i. 21) as God had decreed.

The Hebrew oppression was at its height when a new actor appeared on the scene; the most noted, namely, Moses. His romantic escape as an infant from Pharoah's efforts to check the Hebrew increase, shews how severe was the ordeal through which the Hebrews were then passing; and how potent was the protection of Jehovah and His success in frustrating the Egyptian schemes. For still the Hebrews increased with marvellous rapidity; as they had done when Moses was an adopted Egyptian prince, until the soul-awakening, heaven-planned event that led him to espouse the Hebrew cause, religion and renounce his kingly prospects when about 40 years of age. The continuance of the Egyptian rigour and its severity are shewn by the incident that led to Moses's intervention for an oppressed Hebrew; the manslaughter of the Egyptian oppressor, and flight of the slayer to Midian. The oppression continued during the whole of his 40 years' absence in Midian. But the

Pharaoh in whose reign Moses had criminally committed himself, had died (Ex. ii. 23). Under his successor the oppression became worse than ever; so that "the children of Israel sighed by reason of the bondage and they cried; and their cry came up unto God by reason of the bondage. And God heard their groaning, and God remembered His covenant with Abraham, with Isaac, and with Jacob. And God looked upon the Children of Israel, and God had respect unto them" (Ex. ii. 23-25). It appears doubtful, however, if they in the mass, cried unto *Him*. Possibly they did this to the Egyptian gods. For their spiritual, moral and social decline had been great. The national and individual effect of their long sojourn among the alien Egyptians, descendants of Ham, as they of Shem, had been disastrous. Doubtless this was Heaven-decreed; a foreseen result brought about for a given end. Many of the Hebrews had become idolaters. Probably the majority had forgotten God; or had become callous and indifferent regarding religion. That they had forgotten the God of their fathers, in whose promises they ought to have had so great an interest, is shewn by the colloquy of Moses with the Angel-God of the burning bush. "And Moses said unto God, behold when I come unto the Children of Israel and shall say unto them, the God of your fathers hath sent me unto you, and they shall say unto me, what is his name? what shall I say unto them?" (Ex. iii. 13). They had evidently forgotten God's name even; and the beneficent promises made to Abram, Isaac and Jacob. Such was the effect of the prolonged bondage, and the deteriorating influence of contact with their idolatrous oppressors. Their backsliding had probably begun even during the happy period when Joseph lived and befriended them. For even friendly intercourse with unbelievers and idolaters is dangerous. In their case it proved disastrous; though doubtless heaven-permitted. In the end they embraced religious customs and views with which they at first only coquetted and disbelieved. Ultimately they wholly forgat God and worshipped with the polytheistic Egyptians. The good influence of the God-fearing Jacob and Joseph would do much to stay this spiritual and doubtless also moral and social contamination. But after their death the downward course of the Hebrews in depravity would be rapid and their enslavement by the alien and now unfriendly Egyptians, a people who not only ruled but taught the world, would only hasten this, under the impression that God had forgotten or forsaken them in permitting this debasement. The Egyptian gods were visible and at hand. The unregenerate mind is apt to prefer the seen to the unseen; and worship tangible gods in preference to Him whom we can only see by Faith. A few such as Moses, Aaron, Miriam, Jocebed and Amram, and their family were still faithful

to God and His promises; and bewailed the increasing tide of universal depravity, which their example and teaching were unable to stop. But the mass of the Hebrews no doubt had become nearly as idolatrous as the Egyptians; and also debased, dispirited and illiterate. They were now socially and morally, as well as spiritually, degraded by their slavish work and treatment.

Though thus rapidly degenerating spiritually, the Hebrews continued to prosper numerically and physiologically. They increased till they numbered over two millions; and were thus as numerous as the Egyptians: nor is it surprising that the latter feared this prolific and evidently Heaven-blest race who were individually larger, more muscular, stalwart, and physically superior as a people to the Egyptians. Nor is it to be wondered that the latter tried to dispirit and crush them by physical, mental and social oppression.

But Jehovah had promised to deliver the Hebrews. God did not repent, and would not retract His oft-repeated promises. He still had His beneficent plan of salvation ever in view. He had purposely permitted the Hebrew affliction: no doubt expected their cry: and, Father-like, had His parental ears open to receive and answer it. "Like as a father He pitieth His children" even when their mishaps and distress are of their own making. His plans were progressing. His time for further active interference had now arrived. The position of affairs was now briefly thus:—

1st. The Egyptians had filled their cup of iniquity to the brim; by their gross idolatry and neglect of Him, the only true God; as well as by their oppression of His special people, the Hebrews. Surrounding nations were equally bad, and perhaps worse. Mankind, in their entirety, was corrupt and idolatrous. God's name was almost lost on Earth; His worship almost forgotten. Man was immoral, corrupt, and in every sense vile. Unless some change took place the entire world would clearly ultimately be wholly iniquitous; and as wicked as before the Flood and the Dispersion. Jehovah felt compelled to re-assert His name and authority on Earth.

2nd. He intended to do this by and through His people, the Hebrews; raised, chosen, and trained for that purpose. Thus God had increased them from 70 souls to be numerically a great nation. Again, after a special course of worldly education, spiritual, moral, social and physical, including years of great prosperity, followed by a longer period of abject slavery; he had prepared them for His purpose by making them feel their utter

degradation, helplessness and need of a Deliverer; possibly grateful for one; who not only took them out of bondage but also preserved, fed, clothed, fought for and educated them; gave them happiness, health, prosperity, and also a fertile land for a possession; all in great contrast to the fate of their late oppressors, the Egyptians, routed and destroyed in after days in the Red Sea: and also by contrast to ultimately, at a future day, appreciate the monumental code of laws they were to receive for their own use and that of the world at large, as the basis of a new and better course of education, spiritual, moral, social, political and hygienic, than any the world had yet received, because it was Divine. Another object was to shew not only the Hebrews, but also their Egyptian enslavers, and the world at large, by the most signal proofs, how potent was Jehovah's might, first to free and then upraise one of the most abject of nations, the Hebrews, to the very pinnacle of power; and His ability to degrade the world's then most puissant, the Egyptians, to the lowest depths. Lastly, to shew the world at large how powerless were the multiple gods of Egypt; and how powerful the only true God, Jehovah, is, who brought all this to pass: and how supreme His authority both in Heaven and Earth.

3rd. The chief human agent in effecting this great deliverance and its sequelæ was to be *Moses*. After a long and special Heaven-planned education of 80 years, spiritual, moral, social and physical, to fit him for this, the great mission of his life, the delivery of the Hebrews from Egyptian bondage and elevation into a higher plane among the nations than that occupied by their enslavers; this monumental Hebrew, the greatest that has ever lived, was ready for his task. After receiving his commission at the Burning Bush he left Midian for Egypt, and began his work by taking the Hebrew elders in counsel (Ex. iv. 29); and then appealed to Pharoah to let the Children of Israel go.

The long period of Hebrew chastening, trial, oppression and preparation, God's waiting time, had now passed. That of activity was about to begin. The mode and form of this was sufficiently striking. The ten plagues were sent on Pharaoh, the Egyptians and Egypt. These resulted in the release of the Israelites; the Egyptians being glad to get rid of them (Ex. xii. 32-3). Then followed the destruction of Pharoah and his host; and the complete deliverance of the Hebrews. The sudden and complete elevation of the latter into a nation of freed men; and

the utter discomfiture of their late enslavers must have inspirited the Hebrews as much as it depressed and awed the Egyptians and surrounding nations.

From a distant, modern and dispassionate standpoint we can readily understand why Jehovah led and permitted the Hebrews to remain among the idolatrous Egyptians. It was educational; the main reasons being:—

First. To test their loyalty to Him when mixing with idolaters: not only in the early years of prosperity in Egypt, but also during the subsequent years of adversity. The Hebrews were fast forgetting God.

Second. To shew mankind how easily even God-fearing and Heaven-protected nations, families and individuals fall away from God and Grace; are led into sin and idolatry, and are contaminated even by intercourse and friendship for ungodly people. The Hebrews generally had lapsed into idolatry.

Third. To shew how nations, families and individuals prosper when they fear and serve God, as the Hebrews did while Jacob and Joseph lived; and how they deteriorated spiritually, morally, socially, politically and otherwise when they forgat Him, all His benefits and promises; worshipped and believed in other gods. The once prosperous and wealthy shepherds were now a nation of slaves.

Fourth. To shew His power in making this enslaved nation physical and physiologically and otherwise prosperous and great; as indicated by their marvellous and unprecedented numerical increase, in spite of all the Egyptians could do to prevent this. In 400 years they had increased from 70 to over two millions of souls.

Fifth. To manifest His supremacy over the powerless gods of Egypt and other nations in favouring, helping, and freeing from the Egyptian yoke, and ultimately making into a great nation these Hebrew slaves; and debasing this, the most powerful nation on Earth, and destroying their Army, as a warning to other nations against oppressing His special people, the Hebrews, selected for and even now fulfilling a lofty, Heaven-planned destiny.

Sixth. To humiliate the Hebrews, make them feel their need of a Deliverer; be more grateful for one; and more loyal to Him when freed from bondage.

Seventh. To make them more able to contrast, appreciate and feel the blessings of Jehovah's sway; and the superiority of the "perfect" (Ps. xix. 7) and true (Ps. cxix. 142-151) laws He was about to give them for

their earthly guidance, over those of Egypt and other nations, whose laws were purely human and thus necessarily tinged, as all earth-born laws are, with imperfection and narrow-mindedness.

Eighth. It was part of God's great plan of salvation to lead the Hebrews into Egypt. For He sees not as Man does; and often produces grand and singular results in unusual ways. If God had not acted as He did; but had ennobled the Hebrews and kept them on friendly terms with the Egyptians, they would never have realized how much Jehovah had done for them by taking them from utter subjection and an abject position; emancipating, and raising them to the highest pinnacle of power among the nations of the day. Nor would they have appreciated those magnificent law codes shortly to be given, not only to help their political and martial elevation, but to raise them in all that is best and most lasting in that intellectual, moral, social and spiritual greatness, which is the chief and proudest characteristic of God-fearing nations and forms their highest glory.

Ninth. But God's preliminary work was not yet fully accomplished. He had yet to educate them up. They were still mainly debased and illiterate slaves. He had still to train and make them socially, morally and spiritually great. In all of these points He desired that they should not only excel all existing nations; but become a pattern people for all time. This had yet to be accomplished; not in Egypt and under existing conditions; but as a free nation outside. He had to emancipate them. This He did by miracles directed against the Egyptians while the Hebrews were free; and plagues so grievous that the Egyptians were not only glad to get rid of them, but helped them to go. The miraculous story of this Exodus is best read in the original (Ex. xii.).

The 6th Era of Man-evolution extends from the Exodus to the delivery of the Mosaic law at Sinai, and is thus brief, about a year, although exceedingly momentous. The Hebrews were now in the Desert on the Eastern side of the Red Sea, free from the Egyptian yoke. Their advent on the page of history in the rôle of a numerically and politically great nation had been sudden. Their God-leader had destroyed the Egyptian king, hosts and power, these the leading ones of Earth: shewn all His authority and supremacy and that nothing could withstand Him; that He must and will be obeyed and served: shewn not only His might but also His mercy, patience and

love, not alone for His chosen people but for their late oppressors.

About 3,763 years had now elapsed since Man was created. The masses and even the chosen Israelites were very unlike the original man and woman, the Adam and Eve of Eden. Of the latter during their stay in Egypt it is said they were "a stubborn and rebellious generation, that set not their hearts aright, and whose spirit was not stedfast with God" (Ps. lxxviii. 8). The whole of mankind were now once again degraded in soul, morals, social life, mentally and physically; aliens from God and racially antagonistic towards their fellow men. The Creator had resolved and planned to give the race that still remained most loyal a full and complete code of laws to regulate the conduct of their every entity and endowment; laws best adapted to teach them the way in which they should walk to merit His approval, and best benefit themselves for time and for eternity. At the Exodus the majority of the Hebrews were comparatively rude and uncultivated; for on them the idol worship of Egypt had made a deep impression, as it spoke only to the senses. Evidently they could only be accustomed and led to adopt fully and reverence a spiritual worship such as Jehovah's by slow degrees. Had such a worship been presented at once to their limited comprehension, it would have been too sublime, and they would probably have relapsed into their former barbarism. It was therefore necessary to occupy and restrain so sensual a people by a worship abounding with ceremonial observances. Special rites were therefore instituted in lieu of the numerous religious ceremonies of the Egyptians, striking alike to reason, humanity and morality. They had to be educated up from idolatry and afterwards from Theocracy, by slow degrees; and thence on to Christianity. The Hebrew laws were to prepare the way for what was to follow. A slow but sure means to prepare for and promote a remote end. Infinite wisdom often works thus slowly; but yet surely. They had to undergo many ages of this education till God sent the prophets to teach that sacrifices, fasts, purifications are nothing, without the true fear of God, heart purity and a holy life. In a still more advanced state, when a great number of them had been led and educated up to it by the ordeal of animal sacrifice for sin, and could understand that God was not to be worshipped only in Jerusalem, and did not belong only to the Hebrews, Jesus was sent to save all who worshipped Him in spirit and in truth (John iv. 23) with His higher dispensation, education and system of heart service and sacrifice.

It now remained for God to still further advance His plan by leading His now chastened, obedient, God-fearing and serving, though, alas, too often unruly and backsliding people to

the solitude of the Desert and away from the contamination of surrounding idolatrous nations; where He had them all to Himself; and after still further and more impressively shewing them His power and aiding them by proving their own comparative insignificance and complete dependance on Him, from Mount Sinai He delivered, through Moses, that incomparable, marvellous, monumental, and many-headed code of laws, spiritual, moral, mental, social, hygienic, political, &c., a code that composes the greater part of the last four books of the Pentateuch; laws that were to serve, with exceptions, for their future guidance, and, through them, be a reversion to Mankind at large, for all races and all time; even when the final copestone of His great scheme of salvation was completed by the Saviour's advent, life and death on Calvary; and the new Christian regime of one death for all supplemented the Sinaitic rule of one sacrifice for each transgression. These laws were, moreover, committed to practically imperishable writing, to ensure their permanence. God had now revealed Himself and His will in a new mode; not as heretofore to individuals, but to the race; not in easily forgotten personal and oral communications but in book form.

Thus, with a grand and beneficent object, the salvation and restoration to God's favour not only of the Hebrews but the entire human race; God had thus far carried His great scheme when He appeared to Abraham and said "I will make of thee a great race." The Hebrews were now nearly all that this implies; not so much because they were the most feared and powerful, mightiest and most martial of all nations; but because they had or would soon have all of the Heaven-bequeathed elements for becoming spiritually, morally, socially, hygienically and otherwise great; and, though very far from perfect, as the Pentateuch and history of the Wanderings shew, still, bad as they were, prone to rebellion, idolatry, and sin in every shape, frequent and great backsliding, they were no doubt the most exemplary of the then existing nations. They were especially great in being a God-led and God-governed power, and in being the only nation that had or were soon to have, and therefore could obey the written laws of God; those ordinances that revelation and reason alike testify are best fitted for mankind at large, because codified by the Divinity, who created and therefore best knows the race. Whether the Hebrews have faithfully fulfilled their trust in obeying and bequeathing these Heaven-ordained laws; and whether the human race in its entirety has fulfilled what is plainly both their duty and interest, by believing, accepting and following these laws, which alone of all on earth are "perfect" and "true," it is not our purpose or our place here to enquire into.

Thus it happened, that the Almighty in His forbearance, mercy and love, even after repeated grievous backslidings, which it required the All-heart of God to forgive; revealed Himself to the Jews, by whom His name and worship were to be perpetuated; and bequeathed to them hygienic, that is health-preserving and health-restoring laws for the soul, mind, moral, social, political and body life, &c. These laws formed only part of a broader and more comprehensive scheme devised for the amelioration of the condition into which man had unfortunately put himself; and for his Heavenly and Earthly recuperation. These were collected in the Pentateuch; to be subsequently added to as He decreed, until we finally find in the completed Holy Scriptures a most precious, valuable and practical handbook of hygiene for Man's every entity and function: the best guide-book for time and for eternity ever penned.

The spiritual depravity, which God most hates, of mankind generally during many centuries of that era; their mental ignorance, moral weakness, general lack of knowledge, theological, medical and otherwise, and also their physical degeneracy, were marked and confirmed by Bible story. In some of these respects the Hebrews or educational nation were not much better. To discover this we have only to read the account of the Wanderings, both before and even years after the reception of the law (Lev. xvii. 7; Ex. xxxiv. 16). Practically the whole world was benighted, and spiritually, morally, socially, politically and otherwise educationally degraded. In no respect did Mankind nearly approach the lofty standard which God deemed desirable and indeed imperative. War was one of the favourite pursuits; vice, immorality and sin in every shape their main pleasure. Their gods were innumerable; their social life vicious. Outside of the Hebrews, especially, the whole world was again steeped in wickedness. Jehovah was forgotten except in isolated cases such as Jethro (Ex. iii. 4-18). Not only were they becoming more ignorant, degraded and self-immolating, spiritually, mentally, morally and socially; but signs of progressive physiological decay were equally evident. Life was now materially shortened. Health and strength were doubtless correspondingly reduced. Disease was doubtless very prevalent; and all the more disastrous because their methods of cure were unskilful, unphilosophic, empirical and crude. While their knowledge of sin and its results, disease of soul and body, was so elementary, crude, illogical and erroneous as to be nugatory if not positively detrimental. Their spiritual aspirations, religious observances, morality, social and mental ideas, civil life, medical and hygienic opinions and practice were one and all built on fallacious foundations, and daily departing further and further from the truth. The prospect both for Man's soul,

body, and other entities, and for his welfare for time and for eternity were thus unpromising and sad. Mankind generally, so far, would not reform and turn to God. Satan, sinners and sin were more enticing than religion, Godliness and God.

What was to be the climax and outcome of this spiritual, moral, social, mental, and bodily decadence among the nations, and even among the Hebrews. If Man's spiritual, moral, social and mental depravity and physiological deterioration were to go on increasing thus, where and when and how was it to end? Clearly the entire race would ultimately become so vile and steeped in wickedness as to be irreclaimable, utterly rebel and idolatrous. Earth would ultimately become a pandemonium and be entirely Satan-swayed. So, too, if human longevity from different causes, such as spiritual, moral, social, physiological errors in living, was to decrease in the same ratio as it had done since Adam's creation, while social, moral, spiritual, mental and corporeal morbidity were also to increase, where was it all to end? Would it be in the ultimate extinction of the race? And if the amount of disease from similar causes were to increase with proportionate rapidity, what was to be the outcome? Would mankind ultimately become such a mass of infirmity and morbidity of all kinds so that at last it would become extinct? Noting these dangers which Satan was aiding and with which sin-loving Man could not cope; as often before and as only the All-seeing eye of Omnipotence can; the Almighty continued to pity, once again came to the rescue, tried to aid and if possible save the race; prevent its progressive and rapid degeneracy; stay its downward path to utter ruin of soul and body; their ultimate complete alienation from all that is Godly and good; prevent their reception into the gratified ranks of sin and Satan; and stay the vast spiritual and other forms of deterioration that such a deep lapse implies.

The complex problem was, how to check this decline and introduce a new and better regime and healthier order of mundane life. Man himself had neither the necessary knowledge nor the will or ability to do this. Even the learned classes of that day had not and therefore could not. None but the Supreme had the intellectual grasp, comprehensiveness and versatility to plan a scheme and then practically carry it into effect. So, to first reclaim the Hebrews from this combination of evils resulting from the union of sin, ignorance and folly; and, through them, the whole world: to endeavour to save mankind and give nations and individuals the idea of and the chance of attaining a life on Earth both purer, holier, healthier, happier, and in every sense better: to place and keep them on a higher level and give them the best hope for the future; God gave the Hebrews about a year after their emancipation, and through

them the Gentiles, of that day and the future, a superb code of laws; the most profound and brilliant the world had then or will ever again see; a multiple code, that in fact includes a series of sub-codes for the guidance of our different entities, to ensure their health, happiness and welfare. The whole of these combined form a complete and magnificent system for personal, communal, national and racial conduct. The Creator thus saw clearly what was required; and supplied the very knowledge the world lacked; as part of His great scheme. These laws are those we have already studied at considerable length, the Mosaic or Sinaitic code; one and all preventive and curative of dangerous aberrations in our soul and body, our moral, social and mental nature, such as materially affect our life, health, and happiness here or hereafter.

Such was the condition of human affairs; and such in their initial stage were the Hebrew people whom God had raised up for this great world-enlightening and educational scheme. The Hebrews knew the purpose for which they had been developed, for it formed part of their history and that of their ancestors and old history, which as well as the law was systematically read to them in the Desert. From these records they heard all that God intended to make them accomplish for themselves, the outer world and Him. It is therefore well to point out their salient credentials; and assign clearly the place Jehovah meant them to occupy in the tuition of the world, and how much He intended to help them in carrying this monumental and beneficent work on.

The far-seeing Divine aim of Jehovah for the Hebrew and human welfare is clearly emphasized and its method and object shewn in the Pentateuch by various extracts in its pithy and expressive language. Thus God consecrated them and their work; "I am the Lord which hallow you" (Lev. xxii. 33). From thence they were, like their ancestors, the "Lord's portion and lot of His inheritance (Deut. xxxii. 9). As Divine educators and missionaries the Hebrews were kept apart from surrounding nations of the now well-peopled world; "I have severed you from other people that ye should be mine" (Ex. xx. 26). They were now to be God's special people, like their ancestors, "and they shall put my name upon the Children of Israel; and I will bless them" (Numb. vi. 27). From thence they were to be a "holy and special people" (Deut. vii. 6; xiv. 2); "a people unto himself" (Deut. xxix. 13); "a people of inheritance" (Deut. iv. 20); "a purchased or acquired people" (2 Pet. ii. 1); "a peculiar peopie" (Deut. xiv. 2); "ye are the children of the Lord your God" (Deut. xiv. 1). The Holy Bible defines clearly why the Hebrews were thus selected; "the Lord did not set His love upon you nor choose you because ye were

more in number than any people, for ye were the fewest of all; but because the Lord loved you" (Deut. vii. 7-8). For "the Lord had a delight in thy fathers to love them and He chose their seed after them" (Deut. x. 15). And that "because He had promised to their forefathers, Abraham and his seed for ever" (Luke i.).

God thus took Israel, "a nation from the midst of another nation by temptations, by signs, by wonders and by war, by a mighty hand and by a stretched-out arm and by great terrors" (Deut. iv. 34). For "I brought you forth out of the iron furnace, even out of Egypt" (Deut. iv. 20). Subsequently after trying and training the Hebrews in the Desert, "He also drove out nations greater and mightier, to bring the Hebrews in and give them their land for an inheritance" (Deut. iv. 37-38). The Israelites were thus made "high above all nations which He hath made in praise and in name and in honour," and that thou mayest be an holy people unto the Lord thy God" (Deut. xxvi. 19). The Hebrews were thus favoured above every other people or race inasmuch as "He hath not dealt so with any nation; neither have the heathen knowledge of His laws" (Ps. cxlvii. 20). Their future was to have a lofty and missionary aim. They and their children were to teach and enlighten the world. For "He appointed a law in Israel which He commanded our fathers that they should make them known to their children; that the generation to come might know them, even the children which should be born; who should declare them to their children; that they might set their hope in God and not forget the works of God, but keep His commandments" (Ps. lxxviii. 5-8).

Individually and collectively God had said to the Hebrews "If thou shalt seek the Lord thy God thou shalt find Him if thou seek Him with all thy heart and all thy soul. When thou art in tribulation and all these things are come upon thee, if thou turn to the Lord thy God and shall be obedient unto His voice, for the Lord thy God is a merciful God; He will not forsake nor destroy thee, nor forget the covenant of thy fathers which He sware unto them" (Deut. iv. 29-31). To effect this the Hebrews were charged to lead a spiritual life; "And the Lord spake unto Moses saying, speak under the Children of Israel saying, I am the Lord your God; after the doings of the land of Egypt wherein ye dwelt shall ye not do: and after the doings of the land of Canaan, whither I shall bring you, shall ye not do: neither shall ye walk in their ordinances. Ye shall do my judgments and keep my ordinances to walk therein. I am the Lord your God. Ye shall therefore keep My statutes and My judgments and ordinances: which if a Man do he shall live in them. I am the Lord" (Lev.

xviii. 1-5). One great object of the Hebrew training throughout was to shew them God's lovely and unchangeable character and their own vile one (Hos. ii. 14-15). To prevent idolatrous contamination they were for long to "dwell alone and not be reckoned among the nations" (Numb. xxiii. 9). So as long as they continued separate in spirit and conduct from the heathen they were kept from hostile attacks. They were fed and clothed for forty years: their "raiment waxed not old upon them, their feet swelled not" (Deut. viii. 4). In this there was probably supernatural interposition; perhaps conjoined with their unusually prolific flocks. "And if ye will not be reproved by Me by these things but will walk contrary to Me and will not hearken unto me, then I will walk contrary to you; I will bring seven times more plagues upon you according to your sins" (Lev. xxvi. 21-22). But for the sins of discontent and cowardice they would in a few months have possessed the promised land of which they were within a very short distance when at Kadesh Barnea (Numb. xiii. 26). God bare them "as a man doth bear his son in all the way they went" (Deut. i. 3). This included every kind of care and support. God "went in the way before you to search you out a place to pitch your tents in, to shew you by what way ye should go, in fire by night and in a cloud by day" (Deut. i. 33). Their frequent disaffection, rebellion and ingratitude finds its parallel in the history of nations and of almost every individual. Moses, who led them, said at the end of the Forty Years Wanderings, "Ye have been rebellious against the Lord from the day that I knew you" (Deut. ix. 24). The Deity had a hard task even with the nation He was so befriending. For the Hebrews were then and in the future meant to be blessed above all other nations, such as by their isolation from these; the special care taken of their moral, social, mental, spiritual, political, and sanitary health and welfare; by their numerical increase; by their future hope of becoming a great nation; and by the special honour of giving the Messiah to the world. For all this supernal wealth of love Jehovah expected and desired a special but reasonable return in reciprocated affection and zeal. He had made them a great and feared nation and given them a superb mission. These ought to have made them superlatively and permanently grateful and converted them into a loving, willing, obedient and God-fearing people, devoted to His service; living and working for His glory; and setting such an example to other nations as would lead, light and instruct the world with Divine truth, and bestow the manifold and far-reaching benefits that accrue from righteousness and Godly living. The grand and beneficent motive which the Supreme had in giving the Hebrews, and through them the world, the Mosaic law was one in fullest accord with

the creative, omnipotent, omniscient love of the Almighty; who then, as now, and ever is continually "doing good" (Acts. x. 38). It was developmentally educational: to teach, train and bring Man back to their heavenly allegiance. Could Mankind be more highly honoured than by having God for their Instructor? Could they have a better guide and adviser than their Maker?

The superb educational law codes which Jehovah thus revealed to the Hebrews have certain excellencies of special import: thus—

1st. They are incomparably wise and true, emanating as they do from the intellect and lips of the Supreme Wisdom. No human laws are to be for a moment compared with the Divine.

2nd. They are perfect and unsurpassed by ancient or modern secular productions, original or compiled; so that it is impossible with advantage either to add to or alter them.

3rd. They are supremely beneficent, inasmuch as our life, health, welfare and good; our spiritual, moral, mental, social, political, and sanitary welfare are all studied.

4th. Both singly and codified they are lucid and comprehensive. Our every part and nature, our soul, the real ego, as well as our body, its temporary dwelling, are all legislated for (Ps. cxix. 96).

5th. They are far-reaching and universal; suited for all tribes, conditions, places and all time, from Adam to the end of the race.

6th. They are as inexorable as the physical laws of nature and must be obeyed. Obedience brings health, happiness and prosperity; disobedience, disaster, and disease of many kinds and issues, both temporal and eternal. Hence why the code was so strongly inculcated on the early Hebrews. Also why the two tables of stone and decalogue centred the camp overshadowed by the Shekinah; why they were periodically read to the people; as well as plastered on the walls; and ordained to be written on the heart and thus both known and obeyed.

7th. Some of the codal sections were *permanent* and meant for all time and all nations, *e.g.*, the Decalogue, comprising the spiritual, social, moral, and mental codes. Others were *temporary*, *e.g.*, the ceremonial law, and meant for the Jewish nation and their religion alone till the Messiah was to appear and usher in a new order of things. Others were more or less elastic, *e.g.*, the poli-

tical, civil, criminal, poor and other laws, adaptable to varying circumstances of time, place and environment.

8th. The Mosaic code is not only unrivalled by the laws of any other nation of antiquity, not only for its pure morality, wisdom, justice, beneficence, dignity, and impressiveness, but has undoubtedly formed a basis for the laws of other medieval and modern nations; although the source of inspiration has not always been acknowledged; even as the Proverbs and Ecclesiastes have proved a mine from which much modern wisdom has been similarly dug and developed.

The primary object of the Mosaic code was evidently multiple and was meant:—

a To perpetuate among the Israelites the knowledge of the true God; by them to be disseminated throughout the then known world and future times.

b To excite and exercise religious feelings, and reverence for holy thoughts, words and deeds.

c To keep in remembrance the distinguished benefits which have been conferred on the Hebrews, and indirectly on the world.

d To prevent the Israelites from associating closely with surrounding corrupt and idolatrous nations; thereby to keep them distinct as a "peculiar people" till the barrier should be removed and the gospel sent direct to every creature under Heaven.

e By ceremonies and symbols, outward and visible objects, the Hebrews were taught, socially, morally, intellectually and spiritually to apprehend Divine truths. Repeated cleansings and purifying of persons and dwellings inculcated ideas, both Divine holiness, spiritual, moral, and physical purity. So likewise did the selection of *clean* animals for sacrifice. So also did the unblemished perfection required in the sacrificial victims. So also did the special selection of a tribe and family for the priestly function; as also did the special purifications these had first to undergo. So also did the death of the atoning sacrifice to which the sins of the offerer had been figuratively transferred. So also did the presentation of the blood or "life" to God to avert the irremediable punishment called the "second death."

f Thus, by impressive symbols, the justice and sanctity of the violated law was constantly impressed; guiltiness and need of Divine mercy.

g By three classes of sacrificial victims, suited to the means of different ranks of persons, to shew that salvation

excludes none; and that God accepts according to the sincerity of the offering and not according to its intrinsic value.

h When these services were rightly performed a humble hope of mercy was inspired and consequent love, obedience and gratitude would be developed.

k Greater and better things to come were thereby prefigured; the priesthood, sacrifices and whole ritual forming a grand typical prophecy of Jesus, the great Deliverer's person and work and of the complete and everlasting redemption He was afterwards to accomplish.

l The social, moral, political, criminal, and sanitary laws were all educational, and taught each individual, family, tribe and the nation, and thus the entire world, duties necessary to train the families of Earth for their future introduction into the great family of Heaven.

m The specially hygienic laws, spiritual, moral, social and medical, the latter relating to various purifications, separations of lepers, distinction of meats, &c., were also eminently educational, and not only symbolic of personal and communal purity of soul, heart and body on Earth, to fit us for Heaven, and enable us to avoid or lessen sin-contamination; but also inculcative of that personal and communal, physical and physiological cleanliness which enables us to counteract the diseases and contaminations of Earthly origin that so often interfere with our health, happiness and future for both worlds.

n The medico-hygienic code already studied, shews how closely soul and body hygiene, spiritual, moral, social, mental and corporeal, are intertwined and interdependent. Harbingers of peace, purity, and charity, these health-codes were meant to educate the Israelites of old; and through them to teach "His saving health among the nations" (Ps. lxvii. 2): health being here taken in its widest sense as that of soul and body. So that Man individually and the race collectively may have a chance of restoration to the status and position in which our loving Father-creator would fain again see us.

o These codes as a whole shew how this circle of laws converge in the inculcation and enforcement of the two *greater* commandments into which the Pentateuch and subsequently the Saviour (Mat. xxii. 37-9) condensed the entire law into two great and comprehensive foci of conduct, namely, love to God and to our fellowmen as

constituting one mighty and indivisible human family: the Divine love which prompts and shines through the whole, prompting the development of the human, which somewhat restores Man's likeness to its great and Divine original, his Maker.

p In their entirety these various codes are educational in their main aim, and meant to form in the aggregate a guide book for soul and body in this world: enabling Man the unit and Man the race, by adopting them so as to suit the age, circumstances, and surroundings, to conduct himself in this world so as to reform and make the world and its inhabitants better, happier, and more akin to the Edenic condition; that state which alone merits the Creator's approval and obtains His sure reward, everlasting life, through the Saviour's finished work and sacrificial death.

q As such they still form a practically unfathomable mine in which many a student and philosopher may yet discover new, invaluable, and comprehensive ideas that may, in an earthly sense, immortalize him .

The main object of the Mosaic code is thus identical with and in furtherance of the chief purpose of the larger, more elaborate, Heaven-sent and God-endorsed revelation, the Holy Bible, of which it forms part: as—

1st. It tells us of God's existence, His nature, character, and supremacy.

2nd. What Man and his attributes are, and ought to be: of his fallen nature and chance of reclamation.

3rd. The mutual relation of the Creator and the created; the Father-God and His earthly children; His progress in evolutional development, individual and racial.

4th. The history of Man's salvation and his earthly education towards this end; spiritual, social, mental, physical, physiological and hygienic.

5th. That this is planned and superintended by Jehovah in a manner calculated to fit Man for a higher, holier, happier and more permanent existence hereafter.

It will be clearly evident from this review of Man's early history and his story down to the delivery of the Mosaic or Sinaitic code, that the chief reasons for the revelation of that code were:

First. Man's utter depravity, helplessness and inability to save himself or stay his downward progress in sin; after failing to fulfil the mission and rôle for which God originally intended him and placed him here.

Second. God's great love, pity, forbearance, and mercy for

Mankind; and His desire to help beings, who without His help would be eventually lost.

Third. The gift of this code was one and a most important and preparatory educational episode in God's great scheme for human salvation, initiated at the Fall and completed at Calvary.

Fourth. The progressive and ever-increasing depravity of Man, created a free-will agent, by his strong preference for the allurements of sin over holiness and the service of God.

Fifth. The Divine foreknowledge that this progressive degeneracy and rebellion would happen and Man ultimately become wholly rebel and eternally lost without this tuitional law.

Sixth. As a necessary part of the Divine scheme, it was given both for the sinful Hebrew race and for the entire world for definite and systematic instruction on an elaborate plan, for their earthly guidance and conduct in life.

Seventh. The Deity decided that the education of the world would be best given by a Divinely-selected Man and people, commissioned to teach and exemplify these commands.

Eighth. The Divine knowledge of our human requirements, and that Man's different entities required rules of conduct of many different kinds, one and all adapted for His entire and complex being.

The term Mosaic law has had various meanings attached to it, which it is well to point out: thus—

1st. The Psalmist applied it to the whole will of God to Earth and Man.

2nd. Others have applied it to the entire Pentateuch (Luke xxiv. 27; Acts xiii. 15).

3rd. Others again limit it to the Ten Commandments (Ex. xx.; Mat. v. 17; Luke x. 27; Rom. iii. 20; Gal. iv. 25; iii. 10-13-14-25).

4th. Others have applied it to the Mosaical institutions distinguished from the gospel (Heb. x. 1-18).

5th. Others to the ritual portions of this (Ephes. ii. 15).

6th. In these pages it means all those rules both codified and isolated, found in the Pentateuch, which Moses, at God's dictation, laid down and personally bequeathed for Man's soul and body guidance in their relation to Him, to his fellow-creatures, and to the vast creation of which each individual forms an integral part.

The entire and lengthy Mosaic code was not enunciated

from Mount Sinai; but mainly the Decalogue; the central gem of the entire law; and therefore honoured not only by the place and circumstances of its delivery; but also by its being originally written by the finger of God Himself on two tables of stone hewn by Himself; and being the only part of the law subsequently deposited in the Jewish Ark. The remaining parts of the Mosaic code were delivered in the shadow of Mount Sinai and in the cloud-capt Holy of Holies, where the unseen Jehovah spake to His servant and amanuensis Moses, face to face, as a man speaketh to his friend (Ex. xxxiii. 11); while all the people rose up and worshipped, every man in his tent door (Ex. xix. 11): doubtless in the deepest awe.

The never-to-be-forgotten manner of the delivery of the Mosaic or Sinaitic law, as chronicled in Holy Writ, is in accordance with the vast import of the revelation, and the majesty of the Divine Donor. Near the pointed southern end of the triangular Sinaitic peninsula there lies an isolated group of mountain peaks, collectively named Mount Sinai. Of these the two highest points lie close together, and rise each to the height of 9,300 feet. One of these is the Heaven-honoured Mount Horeb, destined to hold a high place in the history of the world and of the human race.

Between these peaks lie deep gorges and valleys, in one of which, beneath the shadow of the Mount, probably either the Wady esh Shiekh or the Wady Feiran, the newly emancipated nation, the Hebrews, lay encamped nearly 4,000 years ago (B.C. 1491). These and their "aliens" numbered upwards of two millions of souls; a numerous audience. They had only, a little more than a year before, escaped from an Egyptian bondage and slavery of 400 years; which had seriously demoralized and degraded the majority, spiritually, morally, mentally, socially and educationally. In the above-named valley they remained encamped for nearly a year; in the early part of which the events about to be narrated occurred. Their Heaven-ordained leader was Moses, the "Man of God" (Deut. xxxiii. 1; Josh. xiv. 6); and the nation, debased as it was, God's "special people" (Deut. vii. 6).

It was then the third month or Sivan of their year; which corresponds to our May and June. The occasion of their being massed here was not only nationally but racially memorable. This people had been "separated" to receive and transmit God's laws, by example and precept to educate, elevate, rehabilitate and save the rest of mankind, who had rebelled, fallen and become altogether wicked and spiritually, morally, socially, and otherwise degraded and degenerate in soul and in body. The story of this racial decline and the necessity for the intervention of the God of Love to prevent utter ruin of the race, has already

been fully set forth. The Hebrews had been set apart as God's people; and were meant to be trained and taught by certain Heaven-selected men, and taught not after human ways, but after the Divine method and under the Divine eye, to be a "holy people" who would love, honour, obey and worship Him, and Him only (Ex. xxxiv. 14); and to be in this and all other matters, spiritual, moral, social, mental, political, sanitary and otherwise, a model people, who would set an example and teach as well as incite other less favoured peoples and the world generally to do likewise, and thus perchance bring the entire human race back to its Heavenly allegiance; and Man back to Heaven-born happiness, purity, truth, and love; so as perchance once more to occupy somewhat the position of our first parents before their lamentable "Fall" in Eden 2,513 years before. God's educational scheme consisted, not in following human methods, but in revealing a complex code of laws consisting of several separate minor codes for Man's spiritual, moral, social, mental, sanitary and political guidance, both for Man as an individual unit, as nations, and as a race; the whole forming the best guide-book for human beings for time and for eternity; laws from Heaven for life on Earth, happiness here and a sure hope for eternity.

The Author of these laws was the creator of all things. Nor need we wonder that the mode of their delivery was special and awe-inspiring. The Supreme Wisdom, Highest Love, the Omniscient and Omnipotent Intelligence who fashioned Man and his world, and knows us better than we do ourselves, was surely the best fitted to devise, formulate, and condense knowledge of this kind. Therefore as an index of the pre-eminent importance and value of the boon; and of the great condescention of the Giver, these laws were delivered under circumstances of much grandeur and solemnity. The Israelites were first prepared to receive them. Moses brought forth the people out of the camp to meet God, and they stood at the nether part of the Mount (Ex. xix. 17). Called by God, Moses then ascended to the top of the Mount (Ex. xix. 20); where the Hebrew leader was reminded how the Almighty had delivered Israel from the Egyptians; and was promised that if his people obeyed God's voice indeed and kept His covenant they would continue to be "a peculiar treasure to Me above all people; a kingdom of priests and an holy nation" (Ex. xix. 3-6). As directed, Moses told this to the elders of the people and the Israelites as a body, the result being that "all the people answered together and said; all that the Lord hath spoken we will do" (Ex. xix. 8). This answer Moses delivered to the Lord. After this the people, Priests, and their clothing were sanctified and washed, two days running

(Ex. xix. 10-11). This special example of symbolic purity, these universal ablutions and unusual cleanliness and self-denial being all intended to make the whole ceremony unusually solemn (Ex. xix. 10-11-15). Moreover bounds were set, lest the people should go up into the mount or even touch its border; transgression of this incurring the penalty of death (Ex. xix. 30) to man or beast by stoning or shooting. This invested the whole transaction with the most awful solemnity, as the beginning of those remarkable doings between God and His chosen nation, termed the Covenant of Sinai; by which God became their king and established a theocracy, typical of the spiritual dominion of the future Messiah.

The morning of the third day was ushered in by physical phenomena of the most sublime and awful kind; Heaven-sent and meant to inspire the Hebrews with holy respect for what was to follow; and for its Divine Author, Jehovah. On Mount Sinai God Himself descended in devouring fire, the bright symbol of His presence, on the top of the Mount; so that the whole Mount quaked greatly, was altogether on fire, and covered with a smoke which ascended like that of a furnace; obscured it by a thick cloud, from which thunders and lightnings and the voice of a trumpet issued exceeding loud and long and waxing louder and louder (Ex. xxiv. 16-18). Moses, Aaron, Nadab and Abihu and the 70 Elders who were called up into the Mount, but not so far as Moses, were then and there permitted to see the glory of the God of Israel; and the place where He stood, a paved work of brilliant sapphire, bright as Heaven (Ex. xxiv. 10). Although debarred from witnessing the greater glory, the whole of the Hebrews below, people, Priests and Levites, saw and heard the fire, cloud, trumpet; felt the mountain quaking, and heard the voice of God. Moreover the skin of Moses' face shone while he talked with God (Ex. xxxiv. 30) as it also did subsequently on his return to the camp, doubtless to incontestably prove the reality of his Divine audience and mission. So dazzling was this radiance that he put a veil on his face (Ex xxxiv. 33); taking it off when he went into the Tabernacle to speak with God (Ex. iv. 34). So terrible was the sight even to Moses that he was constrained to ejaculate "I exceedingly fear and quake" (Heb. xii. 21); while the awe-struck multitude below "removed and stood afar off" (Ex. xx. 18-20) and said to Moses "speak thou with us and we will hear; but let not God speak with us lest we die" (Ex. xx. 20; Deut. v. 23-27). For they felt that God was in the midst of the thick darkness (Ex. xx. 21); from which He spake to Moses with a great voice (Deut. xv. 22); calling him up to the top of the Mount to bequest there the Decalogue, or spiritual, moral, social and mental law code for Man's higher nature (Ex. xix. 17-20).

These laws, the Decalogue, which form the central gem of the Sinaitic code, were divulged for a definite end, and thus publicly for incontrovertible endorsement, "that the people may hear when I speak with thee, and believe thee for ever" (Ex. xix. 9). There can be no doubt of their Authorship; and none about the authority and Divine investment of Moses to receive them. The effect of God's utterances, so augustly delivered, on the Hebrews was highly beneficial; for it is remarked "and the people feared the Lord and believed Him and His servant Moses" (Ex. xiv. 3); and said to him "go thou near and hear all that the Lord our God shall say and speak thou with us all that the Lord our God shall speak unto thee and we will hear it and do it" (Deut. xv. 27). God's intention, by the bequest of the Decalogue, and the people's evident Godliness at that special moment is evident from God's subsequent remark to Moses, "they have well spoken that which they have spoken" (Deut. xviii. 18): and again, "Oh that there was such an heart in them that they would fear me and keep all my commandments always, that it might be well with them and with their children for ever" (Deut. v. 29). What a splendid and happy future God offered the Israelites then. How utter their folly in wilfully throwing it away. When Moses went up into Mount Sinai God descended in the cloud and stood with him; to proclaim His name and attributes, so that it might be fully understood who gave the laws and why He did so. "The Lord, the Lord God, merciful and gracious, long-suffering and abundant in goodness and truth, keeping mercy for thousands to generations, forgiving iniquity and transgression and sin, and that will by no means clear the guilty; visiting the iniquity of the fathers upon the children's children unto the third and the fourth generation" (Ex. xxxiv. 5-7). Then followed the recitation of the Decalogue, law by law, in the awe-inspiring voice of the Almighty, heard by all, leaders, elders, priests and people. Then the delivery of what had been uttered to Moses, engraved by the Almighty Himself on two tables of stone: for the enlightenment of the Hebrews and the world.

Such was God's impressive mode of delivering the chief code of the Sinaitic law, in order to make their duty regarding it, not only to themselves but to mankind at large, all the more important. How much Mankind has hitherto followed the Divine light and leading in this direction; how much Man has listened, realized, accepted and acted up to these laws and Bible teaching; and how much the best educated of all ages, especially Divines, philosophers and scientists, have accepted, believed and followed these spiritual, moral, social and mental laws; how much statesmen and politicians have studied and utilized the Mosaic code in making or amending modern laws; how much

physicians and sanitarians have studied and acted on the widely suggestive and comprehensive Mosaic hygiene, especially the law of the leper, and thus furthered the salubrity, happiness, enlightenment and prosperity of the human race; and educators taught their scholars from the pure and true fount of the Divine and eternal wisdom, it is beyond the scope of these pages to enquire into.

Humanity cannot guess or foresee what is to be the ultimate end of God's great scheme of salvation, of which the delivery of the law at Sinai was one of the most important outcomes and striking episodes; and, next to Calvary and its sacrifice, the most momentous. But here again we are not left in utter doubt: for the Holy Bible once more steps in and supplies much and most pleasing information. For it tells us that ultimately "all the ends of the world shall be turned to the Lord and all the kindreds of the nations shall worship before Him" (Ps. xxii. 27). "The Earth shall be full of the knowledge of the Lord as the waters cover the sea" (Is. xi. 9). "It shall come that I will gather all nations and tongues and they shall come and see my glory" (Is. lxvi. 18). "And they shall teach no more every man his neighbour and every man his brother, saying know the Lord, for they shall all know me from the least of them unto the greatest of them saith the Lord: for I will forgive their iniquity, and I will remember their sin no more" (Jer. xxxii. 34; Heb. viii. 11). In effecting all this, that part of the Mosaic code which still remains unannulled, will doubtless play its most important rôle to advance the Kingdom of Christ by being His schoolmaster and educator.

But, alas, to know sin and its punishment is not to renounce it. To know God is not to love, serve and obey Him. Even Satan believes and trembles, but does not reform. How many God's Holy Bible, its Pentateuch and its Sinaitic or Mosaic law will enlighten, benefit and turn, so as, with God's grace, to bring about their acceptance of Christ as their Saviour, and how many will die in their sins, are matters entirely in God's hands, and beyond human investigation.

While contrast of the Sinaitic law, bequeathed B.C. 1491, with more *recent* but purely secular codes, such as those of Lycurgus (B.C. 844); Draco (B.C. 623); Solon (B.C. 594); Servius Tullius (B.C. 566); Justinian (A.D. 534); Ina (A.D. 690); Alfred (A.D. 886), &c.; indicates the super-excellence and far-reaching grasp of the former: a comparison with those of more *ancient* date is similarly but even more cogent. For the Hebrew Pentateuch is not the oldest literary production in the world; nor is the Mosaic the most ancient of law codes.

Archæology has contributed much of late years to prove both directly and indirectly the veracity and Divinity of the

Holy Scriptures; and, even within the current year, to demonstrate the infinite importance of the Sinaitic code to humanity. One of the most eminent exponents of this new but most valuable science, and its highest living authority in Assyriology, Mr. Johns, Lecturer at Queen's College, Cambridge, has enabled us to compare a still older law code with the Mosaic. And this by translating the yet earliest known code, that one of Earth's primitive potentates, viz., Hammurabi, who reigned B.C. 2285-2242; that is 794 years before the delivery of the Sinaitic code. This king becomes increasingly interesting when we learn that he is identified with the Biblical Amraphael (Gen. xiv. 1) of the third millenium before Christ; whose rule extended over the whole of Mesopotamia; and who reigned during the migration of Abram from Ur of the Chaldees, on to this very period. The sacred story (Gen. xiv.) tells us how Abram, on Lot's behalf, fought and ultimately triumphed over this very king. Our early chronologies unfortunately still vary considerably. But, following the most accredited, this period was less than a century after Noah's flood (B.C. 2348); and so must have witnessed the erection of Babel in Peleg's time (B.C. 2247), as well as the subsequent Dispersion and Confusion of Tongues; besides being an incident in Noah's time, who lived 350 years after the Deluge; and thus must have lived long enough to witness how soon obdurately sinful Man had again forgotten God; his former punishment for rebellion against Him; as well as their continued apostacy; and realized the imperfect education that such laws as Hammurabi's could impart, and the inability of such purely secular schemes to remedy the fast-increasing evil. Contrast of Hammurabi's with Jehovah's laws further proves how forgiving, beneficent and paternal was God in the face of progressive human apostasy, to come to the rescue and give humanity a code of laws so super-eminently adapted for Mankind generally as are those of Sinai.

The French Government, who have been carrying on Archæological explorations in Elam (the modern Persia), and especially at Susa (the old Persepolis, its capital), in January, 1902, disinterred a block of black Diorite, nearly eight feet high, which has on its obverse a very interesting representation of Hammurabi with sixteen columns of writing in 1,114 lines. Five other columns have been erased. But on the reverse side are twenty-eight other columns, with 2,500 lines of inscription. This Assyrian writing contains the code of laws written and promulgated by Hammurabi, King of Shinar, in the year B.C. 2285-2242 for his subjects; and is thus the oldest known law code in the world, and no less than 794-751 years older than the Mosaic law found in the Pentateuch (B.C. 1491). This has been translated not only by Professor Father V. Scheil but also by Mr.

Johns*; and is given as the most important Babylonian record which has thus far been brought to light. These laws must have dominated far later in Canaan, when the Hebrews subjugated it after the Wanderings. And such was the effect produced on the minds of succeeding generations by this "superb codification of the judicial decisions of past ages," which had come to be regarded as "the right," that 2,000 years and more later it was made a text book for study in the schools of Babylonia. In Assyria also, in the 7th Century B.C., that is 700 years after the delivery of the Sinaitic code, Hammurabi's code was studied in a different edition, apparently under the name of the "Judgments of Righteousness which Hammurabi, the great king, set up"; and no doubt influenced the views of the disaffected Jews both before and after the exile: and been preferred to the Jehovistic laws of Sinai! These laws of Hammurabi number 282, of which 35 have been erased. Contrast of what remain with those of the Sinaitic code will shew how very different, unclassified and inferior in comprehensiveness and breadth they are to the latter, and indicate clearly the beneficence of the Creator to humanity, evidently going further and further astray; and who had clearly forgotten Him for other gods; and thus in their ignorance, folly and debasement could only legislate imperfectly even for themselves; and who thus mercifully stepped in to supply the deficiency.

1. Hammurabi's laws, though just, are comparatively local in their object; those of Sinai are for all races and periods, ranks and ages, for time and eternity.
2. Hammurabi's laws legislate for the moral, civil and social life only; and fail to include certain other duties and their aberrations. Jehovah's laws legislate for every moral, social, civil and spiritual sin and degree of turpitude.
3. Hammurabi's laws mention the word God in 13 places in terms of reverence and obedience; but when we turn to the Dioriate block we find a representation of him receiving laws from the seated sun-god Samas, "the judge of heaven and earth," and also read that he "venerated his gods," thus proving him to have been an idolator.
4. His code contains no provision for the conduct of the spiritual life and soul; a human entity either forgotten or unknown. Jehovah's laws legislate primarily and mainly for the soul's welfare, that is for the real and permanent being, and for the future life. While allied

* T. & T. Clark, Publishers, 38, George Street, Edinburgh.

laws for the mind, morals, social, civil and political life are clearer, fuller, and more pronounced than Hammurabi's secular rules.

5. The latter contain no laws for the welfare of the human body, whereas those of Jehovah are full of hygienic rules for Man's corporeal life and health; most important for every human existence.
6. The purely human Hammurabic code is thus partial and incomplete, as contrasted with the wisdom, depth, breadth, and comprehensiveness of the Sinaitic code, suited for Man's entire entity; a creature evolved by Heaven by the Being who best knows Man's every need; and that he requires rules not only for his social life and intercourse with his fellow men; but also such as aids his personal or body welfare; and above all laws for his higher nature and soul. And gives these, one and all, so pithily and lucidly that none may not understand.

How this Diorite block, with its invaluable inscription, came to be found at Susa, the old Persepolis in Elam, instead of at Hammurabi's capital further west, is explained by supposing it to have been carried off from thence or from a temple at Sippora in Babylonia by some later Elamite conqueror. The Kings of Babylonia and Elam, mentioned in Genesis xiv. as comrades in arms, were for centuries great rivals and doubtless quarrelled and fought; the latter being the victor, and this slab his trophy.

The Deity has seen fit to shroud humankind in this their Earth-probation stage of progressive evolution; as He also has some of the far higher intelligences (1 Pet. i. 12), in not a few mysteries, puzzles and riddles, that no philosopher, scientist, or theologian has yet or may ever be able to solve. But still we have reason to feel deeply grateful that in His Holy Scriptures He has revealed some of the most important and abstruse of these secrets: especially a knowledge of His existence, nature and attributes; our place in nature and relation to Him; and to His creation and our fellowmen; and of the wisest mode of healthy living so as to please Him who created and owns us, and benefit ourselves by the attainment of the highest felicity here and hereafter. And that He has done this in the plainest language, so that modern Bible-gifted Man has no excuse either for glaring mistakes or for going far astray, especially those whose *eyes*, through His grace are no longer "*holden*" (Luke xxiv. 16) from perceiving the truth. The Creator is a Being who "doeth great wonders *past finding out*" (Job ix. 10); yea "great things which *we cannot comprehend*" (Job xxxvii. 5). "Whoso is wise will *ponder* these things" (Ps. ci. 45).

To true Christians, the Creator, the soul, a future life of weal or woe, Satan, sin, human depravity, the atonement and possibility of reclamation, are all deeply felt and awe-inspiring realities. And the Holy Scriptures, rightly interpreted, not an antiquated, obsolete, misleading, and untrustworthy secular volume; but God's revealed, immortal guide Book for the instruction and rehabilitation of the still rebellious human race.

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